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PREVENTION OF BIRTH INJURY AND ITS RESULTING MORTALITY

FROM THE STANDPOINT OF THE OBSTETRICIAN

CHARLES EDWIN GALLOWAY, M.D.

EVANSTON, ILL.

As one reviews the subject of birth injury and studies one's own cases, one begins to wonder, as a recent English author has said, whether it is not true that one of the greatest risks that the human being ever assumes is his passage through the birth canal.

Birth injury may occur in any type of delivery. It is very essential, therefore, that a careful explanation be given to parents, and the most valuable explanation, of course, comes from the consultant who is not present at the birth. This consultant is most often the pediatrician.

The incidence of birth injury is very difficult to ascertain. Nor can any one say whether it is on the increase or the decrease, for one is able to find in the English literature only a few accounts of analyses of large numbers of cases and classifications of birth injuries.

At the Evanston Hospital, investigation of the last 5,000 deliveries reveals the fact that there were fifty-one major injuries including fatal cerebral hemorrhage. Besides these there were thirty-seven minor injuries including abrasions from forceps and other contusions of minor importance. At the same hospital an analysis of the fetal autopsies for the last ten years shows that 34 per cent of these fetal deaths including premature babies were due to cerebral hemorrhage. It also shows that 40.6 per cent of the autopsies on full-term babies dying at birth demonstrated cerebral hemorrhage.

W. H. Taylor has shown through compilation of various autopsy records that in approximately 30 per cent of all fetal autopsies cerebral hemorrhage is found to be the principal cause of death. These figures are presented in table 1.

Of the various injuries cerebral hemorrhage, no doubt, occupies the primary position, as to both severity and mortality, and since it is probably the most common injury it will be discussed first.

CEREBRAL HEMORRHAGE

The old saying that the baby dies below the tentorium seems to have been demonstrated both by clinical and by laboratory evidence. None of the supertentorial part of the brain seems essential for life. As Crothers [1] has said, "the integrity of a small block of tissue lying between the third thoracic vertebra and the tentorium determines whether a baby is alive or dead when born."

1. Crothers, Bronson: Obstetrical Injury of Spinal Cord, Boston M. & S. J. 196: 397 (March 10) 1927.

The exact mechanism by which this particular injury is produced cannot always be explained. Injuries to the brain must be looked on as an interaction of a variety of factors.

Direct therapy or possible prevention of such injuries is confined to the control of pressure and indirectly to the preservation of the continuity of pressure in the various cranial vertebral cavities. It is interesting to note that new-born animals with thick skull bones and no fontanels do not have intracranial lesions. The precise manner in which the tentorium or other intracranial structures are torn does not seem to be important. About all that is known concerning the etiology of cerebral hemorrhage can be summed up in four statements: 1. Distortion of the head causes underlying sinuses to be partially compressed with resulting disturbances of intracranial blood circulation. 2. Compression of the head in one direction causes a compensatory elongation in other directions and this strain is most marked along the free edges of the tentorium. 3. Negative pressure causes a suction effect on the presenting part of the head in vertex presentation and on the uppermost part of the head in breech presentation. 4. The character or strength of the tissue put under stress is an important determining factor.

Bearing these points in mind, it is quite evident that nothing should be done to hasten delivery until the head is visible or on the pelvic floor. The use of solution of posterior pituitary and other drugs to cause more rapid descent of the head is contraindicated.

Episiotomy is indicated in order to relieve pressure as the head comes through the narrow vaginal opening, especially in cases in which the baby is premature.

Premature rupture of the membrane either for induction or to hasten labor seems contraindicated because of the negative pressure exerted on the presenting part.

There are cases encountered in which the heart tones gradually or suddenly become slower about the time the head reaches the midplane. In many cases this is, no doubt, due to intracranial pressure. Application of forceps will only have a tendency to increase the pressure.

Ether many times relieves uterine contractions, and the resulting relaxation will lessen cranial pressure and the fetal circulation may improve.

Outlet forceps in conjunction with episiotomy will probably result in fewer cerebral hemorrhages. If forceps are used, it is much less dangerous to make a cephalic application than a pelvic application and it is also quite essential that there be no squeezing with the blades. If necessary, a towel or set-screw should be used to prevent such squeezing when effort to extract the head is exerted.

After a long labor in which molding of the head has occurred to a marked degree, such a molded head should be released quite slowly.

Another contributing cause is a violent attempt to resuscitate the baby, especially Schultze's swinging.

Many obstetricians as a routine procedure give the baby an injection of 20 cc. of whole blood in the thigh following all difficult deliveries. It is thought that this procedure lowers coagulation time and thereby helps to prevent what would become a dangerous hemorrhage from a point at which slow oozing is occurring. There is as yet, however, no definite proof that the procedure has lowered the fetal mortality but it has been practiced for some time and, I think, will continue to be by most obstetricians.

Another contributing cause, and one that is probably considered by most men, is a too prolonged test of labor. Since cesarean section now carries a satisfactorily low risk, it behooves the obstetrician to use it oftener in cases in which the pelvis is known to be abnormally flat or small rather than to allow the baby to develop a cerebral hemorrhage in an attempt to see whether the uterine contractions can force the head through the inlet. The same can be said for the second stage of labor with the head deeply engaged. Delivery should be effected with episiotomy and forceps generally within two hours. Further delay only tends to raise the mortality. The stubborn obstetrician is the cause of cerebral hemorrhage in a certain number of cases just as the hasty obstetrician is contributing to its prevalence.

Table 1.—*Frequency of Cerebral Hemorrhage as Cause of Fetal Death*

	Autopsies	Cerebral Hemorrhage	
Europe			
Pott	101	14	
Bauereisen	67	11	
Benthin	73	8	
Meyer	64	12	
Moreno	40	10	
Vischer	186	74	
Warwick	58	18	
Schaefer	680	140	
Vogl	178	62	
Cruikshank	800	161	
De Lugo	770	474	
Kuhn	56	18	
Total	3,011	1,002	30%
America			
Bailey	160	40	
Boddie			30%
Paddock	140	63	
Tyson	119	29	
Voron	70	21	
Irving	162	73	
Total	617	226	29%

Table 2.—*Cerebral Hemorrhage at Evanston Hospital, Jan. 1, 1925, to Dec. 31, 1934*

Total autopsies on new-born		291
Term	123	
Premature	168	
Total cases of cerebral hemorrhage		99
Term	50	
Premature	49	

34.02% of autopsies on new-born show cerebral injuries

40.6% full-term babies dying at birth show cerebral hemorrhage

In this study of 5,000 deliveries there were 222 cesarean sections. Two babies showed symptoms of cerebral irritation but recovered and were discharged apparently well. Both cases had had a test of labor. Two other babies were cut with the scalpel when the lower uterine segment was being opened. These were the only injuries among this group of 222.

BRACHIAL PALSY

Injury to the brachial plexus is generally due to stretching of the first and sixth cervical nerves and nerve roots. The injury in some cases is due to pressure between the clavicle and underlying bone structures and also to a primary injury of the shoulder joint or humerus. It is therefore quite necessary that the

Table 3.—*Injuries at Evanston Hospital in 5,000 Consecutive Deliveries*

Major injuries		51
Minor injuries		37
Brain hemorrhage		30
Diagnosed by autopsy	25	
Diagnosis made from symptoms. Lived 3; died 2	5	
Spontaneous	6	
Forceps	13	
Breech	9	
Cesarean	2	
Term	25	
Premature	5	
Fractured clavicle		14
Spontaneous delivery	1	
Version or breech	7	
Forceps	6	
Brachial plexus (all temporary)		4
Spontaneous delivery	1	
Forceps	3	
Skull fracture after version and forceps		1
Fracture of humerus in breech delivery		2

Table 4.—*Minor Injuries at Evanston Hospital in 5,000 Consecutive Deliveries*

Minor injuries		37
Facial paralysis	13	
Forceps	10	
Spontaneous	3	
Forceps abrasions	19	
Hemorrhage of sclera	3	
Soft tissue hematoma	2	
Cephalematoma		20

obstetrician use as little force as possible on the head in vertex presentations and in such an event light anesthesia seems indicated, as the uterine contraction will be more likely to deliver the shoulder. That injury is being done by those delivering babies is quite evident from the fact that new cases are being reported.

Crothers made the statement only a few years ago that sixty new cases a year show up in one clinic at the Children's Hospital in Boston.

Dropping the end of the bed and Kristeller expression are both useful maneuvers in delivering the shoulders. Sharp angulation of the spine in breech contributes to this injury, and the pressure of the fingers on the neck and shoulders of the baby during breech extraction is one of the most common causes.

We have had only four cases of brachial plexus injury in the last 5,000 deliveries and they were all quite mild. The symptoms lasted only from a few hours to a few days. Three were delivered with forceps and one was spontaneous.

FRACTURED CLAVICLE

Muus found an incidence of 1,5 per cent for fracture of the clavicle in 1,700 living babies and it was most common among multiparas. Twenty-two cases that he reported were divided as follows: seventeen spontaneous and five breech.

Hukewytsch in 1929 found thirty-two fractures of the clavicle in 2,213 deliveries. Both of these figures would seem rather high, as I was able to find only fourteen fractured clavicles in the last 5,000 consecu-

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tive deliveries, which gives an incidence of 0.28 per cent. The relative number of fractured clavicles in breech seems much higher than in vertex presentations. Operative delivery seems to contribute practically all fractures of the clavicle. We had only one case in the spontaneous deliveries, whereas there were thirteen in babies delivered either with forceps or by breech extraction.

The operator should avoid traction on the head or neck. In vertex presentation the finger should reach for the axilla as soon as possible, and light rather than deep anesthesia seems indicated.

FACIAL PARALYSIS

Facial paralysis occurs most often in forceps delivery, owing to the pressure of the blades on the tissues surrounding the facial nerve. It may be central, however, because either of cortical or of intramedullary hemorrhage. It has also occurred in spontaneous delivery especially when there was a flat or contracted pelvis. Unless central in origin, the paralysis disappears in from a few minutes to a few days.

The forceps blade should not be too thin, the cephalic curve should not be too sharp, and a sliding blade will sometimes permit a better application to an asynclitic head.

STERNOMASTOID MUSCLE INJURY

Wryneck noticed at birth is a true congenital anomaly in practically all cases. Trauma as the cause is very exceptional. The pathologic state of the sternomastoid muscle is probably due to an anomalous attitude of the head, and this faulty attitude may favor presentation by the breech. Comparatively slight traction suffices to lacerate this abnormal muscle, but the laceration may even improve its condition.

RUPTURE OF THE LIVER

Rupture of the liver is generally due to some abdominal manipulation while an attempt is being made to convert a faulty presentation into a more favorable one. It may occur also in version or breech extraction or in an attempt to assist a delivery by external pressure. The relatively large size of the liver in the newborn is probably a contributing factor. These babies are symptom free at birth and die suddenly about the third day when the capsule breaks as the result of the increasing pressure within the liver. A fairly large intra-abdominal hemorrhage is found at autopsy.

BREECH DELIVERY

Breech delivery and version with breech extraction show a higher incidence of birth injury than any other type of delivery. The fetal mortality is also correspondingly high. A recent report from the Brooklyn Gynecological Society shows that birth injury occurred in 2 per cent of "spontaneous breech assisted," 5 per cent of "breech extraction" and 9.9 per cent of "breech broken up." The report covered all breech deliveries in thirty-two Brooklyn hospitals from 1926 to 1930 inclusive but did not include breech delivery following podalic version. The fetal mortality among babies weighing over 2,500 Gm., after taking out twins, congenital defects, prematures and macerated fetuses, was 12.6 per cent.

Several pertinent facts should be mentioned relative to breech extraction. The unnecessary haste displayed by the average operator seems most objectionable and the next most undesirable factor is the lack of complete relaxation and dilatation of the soft parts. Breech extraction calls for complete dilatation and deep ether anesthesia. Episiotomy is called for in practically every case.

During breech extraction the operator should avoid pressure on the fundus, extreme angulation, excessive suprapubic pressure and dangerous traction. It is possible to elongate the spinal column about 5 cm., and the thoracic cord of the fetus is only about one-eighth inch (0.3 cm.) in diameter. The cord is enlarged in the cervical and lumbar region and is well anchored by the brachial plexus above and the cauda equina below. It is for these reasons that extreme traction causes thoracic cord injury in some cases.

636 Church Street.

THE TREATMENT OF ACUTE NICOTINE POISONING

F. E. FRANKE, M.D.
AND
J. E. THOMAS, M.D.
ST. LOUIS

The fact that an individual poisoned with nicotine is rarely seen by the physician in time to institute treatment is not a sufficient reason for a lack of knowledge as to what may be done to save life when the opportunity is at hand. Except for the usual procedures to remove any unabsorbed poison and the administration of stimulants, we have been unable to find in the literature any description of a rational treatment for nicotine poisoning. Generally the condition is considered hopeless. This pessimistic attitude is apparently due to the belief that the drug causes generalized paralysis of the central nervous system, based on the fact that complete muscular paralysis, loss of reflexes and paralysis of respiration (and finally of circulation) follow its absorption in sufficiently large doses. As Moore and Rowe [1] have pointed out, all these effects could as readily be due to the curare-like action of the drug as to central paralysis. As a result of experiments on dogs,[2] we are convinced that death from nicotine poisoning is due to peripheral paralysis of the respiratory muscles when convulsions are prevented, and, if these occur, to fixation of the respiratory muscles.

We were unable to elicit any clear evidence of paralysis of either the respiratory or the vasomotor center during the convulsive seizures.

At the 1935 meeting of the American Society of Pharmacology and Experimental Therapeutics, Gold and Brown [3] of Cornell University presented strong evidence that nicotine poisoning in the experimental animal causes a peripheral rather than a central paralysis of respiration.

Unpublished experiments carried out under the direction of one of us (F. E. F.) show that the paralysis of reflexes is peripheral rather than central; indeed, that the reflex excitability of the spinal cord is retained even in the presence of nicotine in many times the fatal dose.

Furthermore, experiments herein reported show that nicotine does no evident irreparable damage to any of the structures on which it acts and that the administra-

From the Department of Physiology, St. Louis University (Dr. Franke), and the Department of Physiology, Jefferson Medical College (Dr. Thomas).

1. Moore and Rowe: J. Physiol. **22**: 273, 1897.
2. Thomas, J. E., and Franke, F. E.: J. Pharmacol. & Exper. Therap. **34**: 111 (Oct.) 1928. Franke, F. E., and Thomas, J. E., ibid. **48**: 199 (June) 1933.
3. Gold, Harry, and Brown, Frederick: J. Pharmacol. & Exper. Therap. **54**: 143 (June) 1935.

tion of very large doses is not incompatible with reasonably prompt and apparently complete recovery when appropriate treatment is instituted in time. For these reasons, nicotine poisoning should, we think, be regarded as a temporary respiratory emergency comparable to drowning (or electrical shock) and should be treated as such. We have undertaken to determine the results that follow the application of the methods of treatment in common use in acute emergencies of the type mentioned following the administration of nicotine to dogs in doses that ordinarily prove fatal.

CLINICAL LITERATURE

On reviewing the literature we find seventy deaths [4] from nicotine in rather concentrated solutions and from tobacco. We are supplementing this list with four fatal cases occurring in St. Louis, which have not been previously reported. The deaths from nicotine usually occurred within a few minutes after its ingestion. In only one of twenty-eight fatal cases was treatment attempted. An endeavor to administer an emetic was unsuccessful because the patient's jaws were clenched.

Death did not occur so quickly in the forty-six fatal cases of tobacco poisoning. Alcohol was used in five cases, gastric lavage in three, artificial respiration in two, ammonium carbonate in two and the remaining procedures were tried once each; friction, saline hypodermoclysis, atropine, aqua ammoniae and strychnine.

Artificial respiration was used in two cases, along with stimulants, whisky and elimination. In the Weaks [5] case, artificial respiration was begun after the heart and respiration had apparently stopped, and the patient revived. The artificial respiration was continued for at least five of the next seven hours. Thirty minutes after the artificial respiration had been discontinued the patient suddenly died. In the Reynolds [6] case artificial respiration was resorted to on several occasions when the respiration became very slow. Several hours later, when the patient's condition seemed quite favorable, respiration suddenly ceased, and on immediate investigation the heart was found to have stopped beating.

The value of artificial respiration is strikingly illustrated in the following case: Dr. Bleasdale [7] was called in to see a boy, aged 2 years, whom he found in a dying condition. The boy, a strong sturdy little fellow, had been given a tobacco decoction rectally for the cure of worms. The physician found the child comatose and pulseless, and the breathing had almost ceased. The boy's pupils were widely dilated and insensitive. Artificial respiration was administered at once and kept up for about one hour, during which time others present administered soap and water enemas and, afterward, brandy by rectum. For the first twenty minutes there was little effect, and whenever artificial respiration was stopped the patient did not breathe. Gradually there was a change for the better and at the end of about forty minutes the child vomited. After this the improvement continued, and the artificial respiration was discontinued at the end of an hour. Three hours later the child had completely recovered from the effects of the poison except that he complained of feeling tired.

Removal of the poison is, of course, indicated. McNally [8] reports a case of recovery following the ingestion of a concentrated nicotine solution. He attributes the recovery to the profuse vomiting and gastric lavage, which was carried out. Emetics may be effective in removing pieces of tobacco that will not pass through the stomach tube.

Esser and Kühn [9] describe a case of recovery following the ingestion of 4 Gm. of pure nicotine. They attribute recovery to the fact that the patient had taken food previously and to the copious and persistent vomiting that occurred.

Coffee, ammonia and artificial heat have been used in a number of cases in which recovery occurred. At a time when tobacco was used therapeutically, whisky was often used as a stimulant.

While the fatal dose of nicotine is very small, Sollmann [10] giving one drop (65 mg.) as the minimal fatal dose, yet individuals have ingested much larger quantities and have recovered. Vomiting generally occurred or gastric lavage was carried out.

Through the courtesy of the health commissioner of St. Louis, Dr. Bredeck, we inspected the records of the coroner's office for a period of ten years ended in 1933 and found four deaths from nicotine poisoning. A brief account of these cases follows:

T. H., July 24, 1926, committed suicide by drinking a nicotine insecticide. He was seen taking the insecticide, fell to the floor and asked for a doctor. He died in an ambulance on the way to the hospital.

J. C., Dec. 28, 1928, was found dead in bed. On the floor nearby was a 2 ounce (30 cc.) bottle which contained nicotine. He had threatened suicide.

4. These were reported by:
McNally, W. D.: J. Lab. & Clin. Med. **5**: 213 (Jan.) 1920; **8**: 83 (Nov.) 1922.
Peterson, F.; Haines, W. S., and Webster, R. W.: Legal Medicine and Toxicology, Philadelphia, W. B. Saunders Company **2**: 554, 1923.
Taylor, A. S.: Guy's Hosp. Rep., 1858, p. 345.
Feil, H.: Cleveland M. J. **15**: 174 (March) 1916.
Skae, D.: Edinburgh M. J. **1**: 643, 1855-1856.
Shaw, C. S.: Philadelphia M. Times **8**: 528, 1878.
Johnson, G. S.: Lancet **2**: 337, 1890.
Wharton, Francis, and Stille, M.: Medical Jurisprudence, Philadelphia **2**: 603, 1884.
Edinburgh M. & S. J. **9**: 159, 1813 (anonymous).
Reynolds.[6]
Eads, P.: Lancet **2**: 480, 1849.
Weidanz, O.: Heilkunde, Berlin, 1907, pp. 333-340.
Garvin, E. G.: Cleveland M. J. **12**: 130, 1913.
Fontanelle, J.: J. de chim. med. **2**: 652, 1836.
Chevallier, A., ibid., 1839, p. 326.
Ansiaux, N., ibid. **3**: 23, 1827.
Chevallier, A., ibid. **3**: 592, 1827.
Grahl: J. d. pract. Heilk. **71**: 100-106, 1830.
Husemann A., and Husemann, T.: Handbuch der Toxicologie, 1862, p. 681.
Ravignot, M.: Gaz. méd. de Paris **8**: 763, 1840.
Merriman: London M. Gaz. **1**: 559, 1839-1840 (editorial).
Morgan, E. R.: Brit. M. J. **2**: 487, 1875.
Thomas: Brit. M. J. **2**: 389, 1877 (editorial).
Lancet **2**: 1114, 1885 ("Annotations," anonymous).
Acta Helvetica, Basileae **5**: 330, 1762.
Oppolzer: Brit. M. J. **2**: 520, 1873 (editorial).
Taliaferro, V. H.: Atlanta M. & S. J. **3**: 462, 1857-1858.
Dezimirovice, K.: Wien. klin. Wchnschr. **32**: 226, 1919.
Lawes, F. A. E.: M. J. Australia **1**: 84 (Jan. 21) 1928.
Christison, Poisons, Barrington and Haswell, Philadelphia, 1845.
Weaks.[5]
Copland, James: Dictionary of Practical Medicine, London **3**: 405, 1858.
Broombead, C.: M. Chron., Manchester **9**: 473, 1888-1889.
Fonssagrives and Besnow: Ann. d'hyg., Paris, 2 s. **15**: 404, 1861.
Desault: Oeuvres chir. **2**: 344.
Witthaus, R. A., and Becker, T. C.: Forensic Medicine and Toxicology, New York, William Wood & Co. **4**: 772, 1896; ed. 2, **4**: 1002, 1911.
Cooper, A.: Anatomy and Treatment of Hernia, Philadelphia, Leo and Blanchard, 1844, p. 85.
Le Briert, J.: Gaz. d. hôp. **37**: 338, 1864.
Simons: Nederl. tijdschr. v. geneesk. **13**: 233, 1877.
Boutmy: Ann. d'hyg., 3 s. **4**: 201, 1880.
Pharm. J. & Tr., London, n. s. **6**: 91, 341, 1864-1865.
Chevallier, A.: J. de chim. méd. **3**: 592, 1827.
Hardman, L. G.: Atlanta M. & S. J., n. s. **1**: 648, 1884-1885.
Pharm. J. & Tr. **1**: 195, 1859.
Collet, G. E.: Contribution a l'étude de l'intoxication nicotinique aigue, Bordeaux, 1912, No. 101.
Pharm. J. & Tr. **6**: 91, 1864-1865.
Howard, C. D.: Boston M. & S. J. **190**: 975 (June 5) 1924.
5. Weaks, W. A.: Boston M. & S. J. **47**: 461, 1853.
6. Reynolds, H. S.: A Case of Acute Nicotine Poisoning of Peculiar Origin, J. A. M. A. **62**: 1723 (May 30) 1914.
7. Bleasdale, R.: Brit. M. J. **1**: 1155, 1906.
8. McNally, W. D.: Nicotine Poisoning with Recovery, J. A. M. A. **77**: 377 (July 30) 1921.
9. Esser, A., and Kühn, A.: Deutsche Ztschr. f. d. ges. gerichtl. Med. **21**: 305, 1933.
10. Sollmann, Torald: A Manual of Pharmacology, ed. 3, Philadelphia, W. B. Saunders Company, 1926, p. 411.

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F. W. H., a man, aged 54, a truck driver, went to the basement of his home, June 8, and ten minutes later returned upstairs holding his abdomen and shortly after fell to the floor. Attempts to get him to swallow milk were unsuccessful, for he had lost consciousness. The patient was apparently dead by the time a physician arrived. A half pint whisky bottle partly filled with nicotine was found on a table in the basement. The coroner reported the death as due to nicotine solution; whether it was taken accidentally or intentionally was not ascertained.

J. W., a boy, aged 3 years, was playing in the kitchen, and when the woman watching him had turned her back he took a bottle containing "nikoteen" insecticide and drank part of its contents. She took him to a hospital less than a block away, where he died a few minutes later. An autopsy was performed but the stomach contents were not analyzed.

Esser and Kühn [9] point out the increasing incidence of nicotine poisoning in recent years. McNally found five cases of fatal nicotine poisoning in Cook County, Ill., in a period of two years, and we are reporting four cases in a period of ten years in the city of St. Louis. If one assumes that such a ratio of nicotine deaths to population holds true for the United States as a whole, there are more than 500 deaths in a ten year period instead of the much smaller number that we have found in the literature.

METHODS

In all but one of the experiments herein reported the nicotine was either dropped into the mouth in the form of the undilute alkaloid or injected into the circulating blood in 10 per cent solution. It was given intramuscularly as the hydrochloride in one instance. The injections were made either into a vein or into the cavity of the left ventricle. Both anesthetized and unanesthetized dogs were used.

The results of the following methods of treatment were observed: artificial respiration alone, artificial respiration with intracardiac injection of epinephrine and indirect massage of the heart, and artificial respiration and direct massage of the exposed heart, with or without intracardiac injection of epinephrine. The epinephrine was given in doses of from 0.2 to 1 cc. of the 1:1,000 solution, according to the size of the dog.

The artificial respiration consisted of positive ventilation of the lungs by means of an interrupted current of compressed air. The air was supplied to anesthetized animals through a close fitting tracheal tube and to unanesthetized animals through a face mask made air tight by means of petrolatum cotton packing. When artificial respiration alone was relied on it was started before the circulation and respiration had failed. The other measures were used to resuscitate animals that were apparently dead.

RESULTS

A. *Artificial Respiration Alone.* — Artificial respiration without other treatment was tried in sixteen experiments on unanesthetized animals (table 1). In fourteen of these it was begun shortly after or (in one animal only) just before the nicotine was administered and while the pulse was still palpable, or when the blood pressure was being observed before it had fallen below the normal level. In all these fourteen experiments the animals lived as long as the artificial respiration was continued. Ten of them recovered completely and survived till used for other purposes. In two the artificial respiration was stopped before recovery and two were killed later with a second dose of nicotine. Seven of these animals were given nicotine in doses that had proved uniformly fatal in other animals,[11] and six of these were in the group that survived indefinitely. According to our results with similar doses in other experiments, three fourths of the other animals would have died if artificial respiration had not been given.

Artificial respiration was started in two experiments after the circulation had failed; that is, after the pulse was no longer palpable in one instance and while the blood pressure was falling rapidly and had reached 60 mm. in the other. No improvement was noted in these animals, and the heart ultimately stopped in spite of the artificial respiration.

There were no signs of circulatory failure in the group of fourteen animals as long as the artificial respiration was continued. The pulse was of good volume and the blood pressure, when observed, was generally above the normal level during the first half hour but slowly returned to the normal level. If the artificial respiration was stopped the blood pressure rose slightly at first and then fell rapidly, as in ordinary asphyxia. However, we got the impression that the circulation failed rather more promptly in nicotinized animals after the respiration had been stopped than it does in simple asphyxia. We have no data on the length of time that normal animals survive asphyxia and are therefore unable to make a direct comparison. Generally one minute of asphyxia was sufficient to cause an alarming fall in the blood pressure of the nicotinized animals, especially if allowed to develop soon after the nicotine was given. Later the animals were able to survive two minutes or more without artificial respiration, but this was probably because, having partially recovered from the effects of the nicotine, they made some spontaneous respiratory efforts.

B. *Artificial Respiration, Intracardiac Epinephrine and Indirect Cardiac Massage.*—This treatment was employed as a means of resuscitating animals that were apparently dead following the intravenous or intracardiac administration of a fatal dose of nicotine. Sixteen animals were treated in this manner (table 2). Twelve of these were in the surgical stage of ether anesthesia when the nicotine was given and four were unanesthetized. The treatment was begun in these animals only after respiratory movements had ceased and the heart beat could no longer be detected by palpation either of the pulse in the femoral artery or of the heart through the chest wall. In our rather large experience no animal has recovered without treatment after this stage has been reached, and we are convinced that spontaneous recovery does not occur after the heart action and respiratory movement can no longer be detected by external observation. The size of the dose is therefore of less importance in these experiments than in those described in the previous section for the reason that the dose, though in some cases less than the certainly fatal dose, proved to be a fatal dose for the particular animal to which it was given.

Most of the animals were prepared for artificial respiration before the nicotine was given, so that this part of the treatment was generally started promptly as soon as we had satisfied ourselves that the circulation and respiration had positively failed. The administration of epinephrine and the beginning of cardiac massage were occasionally postponed for a few minutes to test the efficiency of artificial respiration alone. As stated previously, artificial respiration alone was uniformly ineffective after circulatory failure. The time from the giving of nicotine till the beginning of each of the aforementioned procedures is given in the table.

11. Franke, F. E., and Thomas, J. E.: Proc. Soc. Exper. Biol. & Med. 29: 1177 (June) 1932.

One half of the animals were successfully resuscitated and, with one exception, restored to normal. This one animal was apparently recovering but died following interruption of the artificial respiration.

Some of the deaths were associated with delay in administering a part of the treatment, and it is probable that a somewhat higher percentage of recoveries would have been obtained if the treatment had been started promptly in all the animals. However, a few animals died which were given the full treatment as soon as possible after the failure of the circulation and respiration had been established.

Most of the failures were in animals in which the symptoms developed slowly and a comparatively long period of partial asphyxia preceded the beginning of treatment.

Artificial respiration does not prevent the peripheral muscular paralysis that ordinarily follows fatal doses of nicotine and it has to be continued until this passes away. The duration of the paralysis varied a great deal (from ten minutes to three hours and twenty minutes) and was not always proportional to the dose of nicotine. For example, one animal that had been given 10 mg. per kilogram intravenously recovered completely after ten minutes of artificial respiration, while another animal treated in the same way, after 5 mg. per kilogram, took one hour and fifteen minutes to recover. Because of the extreme variability in the duration of the paralysis it is not possible to determine accurately whether it was influenced by the different procedures, but it appears to be about the same in this group as in the preceding.

TABLE 1.—*Results with Artificial Respiration as the Only Therapeutic Measure*

Dog	Dose of Nicotine, Mg. per Kg.	Mode of Administration	Time from Giving Nicotine till Artificial Respiration Was Started, Minutes	Condition of Circulation	Duration of Artificial Respiration: Hours	Duration of Artificial Respiration: Minutes	Final Results
29-'24	9.6	Tongue	...	.....	..	11	Recovery
29-'24 (2d dose)	9.6	Tongue	3	Good pulse	..	14	Lived during artificial respiration; allowed to die; revived later with epinephrine
14-'24	9.2	Tongue	6.2	Good pulse	1	15	Recovery
50-'24	8.0	Heart	0.5	(Convulsions)	2	2	Lived during artificial respiration only
53-'24	8.0	Heart	0.3	(Convulsions)	1	22	Recovery
11-'27	10.0	Vein	1	Good pulse	2	38	Recovery
13-'27	10.0	Vein	1	(Convulsions)	..	10	Recovery
12-'27	10.0	Vein	1	.....	2	4	Recovery
14-'27	10.0	Vein	1	(Convulsions)	2	33	Recovery
7-'27	5.0	Vein	2	No pulse	..	5	Death
8-'27	9.0	Vein	1.1	Good pulse	2	..	Recovery
20-'27	5.0	Vein	1	Blood pressure 100 mm. but falling	1	15	Lived during artificial respiration; killed with second dose
18-'27	5.0	Vein	2.1	Blood pressure 150 mm. but falling	..	10	Recovery; killed same day with second dose
19-'27	5.0	Vein	1.5	Blood pressure 60 mm. and falling rapidly	..	..	Death
6-'23	7.8	Muscle (HCL)	4.0	.....	..	13	Recovery
6-'23	15.6	Muscle (HCL)	Less than 3.0	.....	3	20	Recovery

TABLE 2.—*Results with Artificial Respiration Intracardiac Epinephrine and Indirect Massage of the Heart Through the Chest Wall, Following Failure of Circulation and Respiration*

Dog (Etherized)	Dose of Nicotine, Mg. per Kg.	Time from Giving Nicotine Till Treatment Started, Minutes: Artificial Respiration	Epinephrine	Cardiac Massage	Dose of Epinephrine (Total) Cc. 1:1,000	Duration of Artificial Respiration: Hours	Duration of Artificial Respiration: Minutes	Results
15-'25	7.5	3.5	6.5	8.0	0.2	..	..	Death; direct cardiac massage also failed
14-'25	5.0	5.6	7.3	6.3	0.3	..	54	Complete recovery
15-'25	5.5	14.0	15.5	14.6	0.4 (repeated)	..	..	Death
16-'25	5.0	10.0	10.0	11.0	0.4 (repeated)	..	..	Death
17-'25	4.0	18.5	18.5	18.5	0.3 (repeated)	..	..	Death
18-'25	4.0	7.5	8.5	8.5	0.4 (repeated)	..	..	Death
20-'25	4.0	6.5	8.3	6.5	0.3	..	42	Complete recovery
21-'25	4.0	7.0	7.6	7.6	0.4	1	10	Complete recovery
22-'25	3.5	6.5	7.75	7.75	0.3	..	..	Temporary recovery of heart, then death
26-'25	4.0	8.5	9.6	9.6	0.5	1	2	Complete recovery
27-'25	4.0	14.5	15.5	15.5	0.6	..	..	Death
28-'25	3.0	3.0	5.0	None	0.3	..	50	Complete recovery
(Unetherized) 22-'27	3.0	1.75 (manual) 12.75 (mechanical)	1.75	15.75 20.0	0.5 (vein) 0.75 (heart)	..	..	Death
23-'27	3.0	3.0	2.25	2.25	0.5	..	7	Complete recovery
24-'27	3.0	3.5	3.25	4.0	0.5 (repeated)	1	1	Complete recovery
26-'27	2.0	3.3	3.3	3.3	0.5	..	..	Temporary recovery; death followed after 1.75 minutes without artificial respiration

A constant tendency toward a fall in body temperature was noted during the period of paralysis. A rectal temperature of 31.5 C. (88.7 F.) was observed in one animal that did not recover. Although we applied heat in only a few experiments, its use is evidently indicated in prolonged muscular paralysis.

Two deaths were reported among the seventeen animals that recovered from the acute effects of the poison and were allowed to live. One of these was a pregnant bitch that died seventeen days after the experiment. The cause of death was not determined. The other animal had a respiratory infection that was evident on

In nine of a group of sixteen animals the heart beat was restored by means of artificial respiration and direct cardiac massage without epinephrine. In six animals the procedure failed to restore the circulation and epinephrine was tried later. In one the heart began to fibrillate before epinephrine could be used. This one experiment and the nine sccccssful experiments of this group are listed in table 3. The six that were finally given epinephrine are listed in table 4 with the other experiments in which epinephrine was used.

Artificial respiration, direct cardiac massage and intracardiac epinephrine were tried in ten animals,

TABLE 3.—*Results with Artificial Respiration and Direct Cardiac Massage Without Epinephrine*

Dog	Dose of Nicotine, Mg. per Kg.	Mode of Administration	Artificial Respiration Started, Minutes After Administration of Nicotine	Condition of Circulation	Duration of Artificial Respiration		Results and Comment
					Hours	Minutes	
58-'24	6.0	Heart	2.5	Heart stopped	0	14.5	Lived during artificial respiration
31-'24	9.9	Tongue	6.5	Heart stopped	0	9.0	Lived during artificial respiration
45-'24	12.0	Tongue	6.5	Heart weak; blood pressure 0	0	9.3	Lived during artificial respiration
46a-'24	6.0	Heart	7.0	Heart stopped	0	57.0	Lived during artificial respiration
38-'24	10.0	Vein	2.25	Heart stopped	0	53.0	Lived during artificial respiraton; heart stopped after artificial respiration stopped; restored later with epinephrine
42-'24	10.0	Vein	5.0	Heart stopped		?	Heart fibrillated in 4 minutes
44-'24	10.2	Tongue	6.0	Heart feeble	0	9.0	Lived during artificial respiration
29-'24	10.0 (twice)	Tongue	4.0 (after 2d dose)	Heart feeble	0	15.0	Lived during artificial respiration (morphine ether anesthesia)
28-'24	10.2	Tongue	8.0	Heart stopped	0	20.0	Lived during artificial respiration (morphine ether anesthesia; both spl. cut)
36a-'24	10.0	Vein	2.0	Heart stopped	0	20.0	Lived during artificial respiration (ethyl carbamate anesthesia)

TABLE 4.—*Results with Artificial Respiration, Direct Cardiac Massage and Epinephrine*

Dog	Dose of Nicotine, Mg. per Kg. on Tongue	Time from Giving Nicotine Till Treated, Minutes			Condition of Circulation	Duration of Artificial Respiration		Results and Comment
		Artificial Respiration	Cardiac Massage	Epinephrine		Hours	Minutes	
15-'24	10.0	3.5	6.0	5.5	No pulse	1	31.0	Lived during artificial respiration; artificial respiration and epinephrine alone failed
9-'24	20.0	2.5	13.0	2.5	Heart stopped	0	52.0	Lived during artificial respiration; second effort to resuscitate failed
15-'24	9.2	5.0	14.0	10.0	Tongue pale, no pulse	..	....	Heart fibrillated after epinephrine was given
27-'24	5.0 (1) 10.0 (2)	3.5 (after 2d dose)	9.0	9.0	Pulse and apex beat absent	0	53.0	Lived during artificial respiration
23-'24	10.0	3.6	18.0	12.6	No pulse	..	....	Complete failure; cardiac massage delayed
25-'24	10.0	3.0	8.0	5.0	Heart stopped	..	....	Heart fibrillated; dog was atropinized
45-'24	20.0	5.5	5.5	27.0	Heart beating feebly	..	....	Lived during artificial respiration
35-'24	9.5	5.0	6.5	10.0	Heart stopped	..	....	Heart fibrillated after epinephrine was given
23-'24	10.3 (1) 14.7 (2)	7.3	9.0	12.0	Heart stopped	2	15.0	Lived during artificial respiration
24-'24	9.4	2.8	7.0	6.0	Heart stopped	..	....	Temporary recovery; died before artificial respiration was stopped

the day of the experiment and became very much worse the following day. The other animals were apparently normal on the day following the experiment and continued so indefinitely.

C. *Artificial Respiration and Direct Cardiac Massage, With or Without Epinephrine.*—Although direct cardiac massage is rarely a practicable procedure outside the laboratory, these experiments are thought to be worth reporting for the light they throw on the ability of the circulatory mechanism to recover following failure induced by nicotine.

In all these animals the thorax was opened, excluding the possibility of dispensing with the artificial respiration, so that only the circulatory phenomena are of interest. All the animals were killed at the end of the period of observation.

including the six in which a previous attempt at resuscitation without epinephrine had failed. In five of these the heart beat was restored and continued till the end of the experiment.

In the other five the heart either fibrillated or failed entirely to respond to the treatment. In three of these a prolonged attempt to restore the heart's action without epinephrine had failed and epinephrine was used as a last resort. In the other two the treatment was applied as promptly as in many that recovered, and these must be regarded as instances in which the method of resuscitation failed, even when administered satisfactorily. Further details of these experiments are given in table 4.

All together, direct cardiac massage was used, with other treatment, in twenty animals after the circulation

had failed following the administration of nicotine. Resuscitation failed in a total of six of the twenty trials but in only three that cannot be accounted for by unusually unfavorable conditions. This is probably as good a record as could be obtained in a similar number of cases of simple asphyxia.

COMMENT

The use of artificial respiration to keep animals alive after the administration of what would otherwise be a fatal dose of nicotine is a common laboratory procedure. It was used by Langley and Dickinson [12] on the rabbit, cat and dog. It would seem that this fact should have suggested this measure as a means of treatment of acute poisoning in the human being. However, artificial respiration is seldom mentioned in this connection. We know of but three cases in which it has been tried. In one instance the patient recovered and in the other two life was evidently prolonged.

Hatcher [13] noted that artificial heat caused a marked improvement in the condition of rabbits that had been injected with nicotine hypodermically.

Gautrelet and Halpern [14] report an antagonism between nicotine and iodomethylate of methenamine. Their observations were made on experimental animals.

Our results indicate that artificial respiration started before the circulation has failed and continued until the muscular paralysis passes off should prove uniformly successful. They indicate also that there may be considerable hope of restoring the circulation soon after it has failed by injection of epinephrine into the left ventricle and indirect massage of the heart through the chest wall. Direct cardiac massage is not often a practical procedure in man, but the fact that it proves successful in a considerable percentage of cases in animals indicates that the nervous elements necessary for the maintenance of the circulation are not necessarily paralyzed by the action of nicotine.

Nicotine poisoning is relatively rare, but it is a potential menace in tobacco factories, especially those which manufacture nicotine products. All such places should be provided with means for the prolonged administration of artificial respiration and employ some one trained in its use. Artificial respiration should also be mentioned in the directions for the treatment of poisoning given on the labels of containers for nicotine.

SUMMARY

Various means of treatment and resuscitation were tried in fifty-two dogs acutely poisoned with nicotine.

Artificial respiration was uniformly successful if it was started before the circulation had failed and was continued till the muscular paralysis had disappeared.

Artificial respiration, intracardiac injection of epinephrine and indirect cardiac massage were used with fair success to resuscitate animals in which the circulation and respiration had failed.

The circulatory failure that follows fatal doses of nicotine in dogs is not necessarily permanent but is recovered from promptly if the heart can be started and artificial respiration maintained.

Prolonged artificial respiration and, when the heart has stopped, intracardiac injection of epinephrine are recommended for trial in cases of acute nicotine poisoning.

1402 South Grand Boulevard.

12. Langley and Dickinson: J. Physiol. 11:265, 1890.
13. Hatcher, R. A.: J. Physiol. 11:17, 1904.
14. Gautrelet, J., and Halpern, N.: Arch. internat. de pharmacodyn. et de thérap. 47:5 (Jan. 30) 1934.

HYPERSENSITIVENESS TO PITUITARY EXTRACTS

FRANK A. SIMON, M.D.
AND
C. F. RYDER, M.D.
LOUISVILLE, KY.

Hypersensitiveness to pituitary extract is apparently an uncommon condition. Hasson [1] in 1930 reported a case of general reaction following the injection of pituitary extract, and Wang and Maxwell [2] in 1933 reported a similar case of shock which occurred post partum and which they proved, by reinjecting a smaller quantity of the drug, to be due to solution of posterior pituitary. In neither of these cases is there a record of skin tests or of other allergic studies. One of us [3] recently described a case, which is presented here with four others that came to our attention later. Personal inquiry [4] has revealed six other cases of general reaction in which posterior pituitary extract was suspected as the etiologic factor.

In a period of less than two years five cases of hypersensitiveness to pituitary extract have been observed in the Louisville City Hospital, three of the cases occurring within three months.

Case 1.—Mrs. H. F., an American housewife, aged 28, in good general health, the mother of seven children, had no personal or family history of allergic diseases. Following the birth of two of her first five children she was given a subcutaneous injection by her private physician (presumably pituitary extract). In November 1933 she was given the usual injections of pituitary extract and ergot following the birth of her sixth child. There were no untoward reactions from any of these injections. Her seventh baby was born Nov. 8, 1934, and again the usual subcutaneous injections of pituitary and ergot were given. About thirty minutes later massive swelling of the lips and face was noted, and the patient complained that her tongue felt as if it were greatly swollen. She began to have respiratory difficulty, which increased steadily until it was relieved by epinephrine. She recovered completely and had an uneventful puerperium until the sixth day post partum, at which time a generalized urticarial rash occurred with considerable itching and discomfort. This lasted five days, gradually subsiding and leaving the patient feeling well. Apparently the patient was sensitized by one of her previous injections; namely, that of November 1933.

Case 2.—C. R., aged 26, the mother of five children, without a personal or family history of allergy, received pituitary extract post partum on Oct. 7, 1929, Sept. 8, 1932, and Feb. 4, 1934. There were no unusual symptoms from any of these injections. On Dec. 5, 1934, she was given double strength pituitary extract, twelve doses, 0.5 cc. each, following a dilation and curettage for hyperplastic endometritis. There were no immediate reactions, but six days later she began to have swelling of the face and hands, and a generalized urticaria developed which lasted five days. She was apparently sensitized by the injections given on Dec. 5, 1934.

Case 3.—M. J., aged 35, without personal or family history of allergy, has two children, aged 2 and 10 years, respectively. She received pituitary extract after both deliveries and no unusual reactions were noted. On Feb. 3, 1935, she was given 1 cc. of double strength pituitary extract for relief of abdominal distention. Three hours later she noticed a firm swelling at the site of injection in the thigh. The following day this swelling had increased considerably and was described as being the size of a dinner plate. No urticaria or other general symptoms were noted. This patient was apparently sensitized by

From the departments of Medicine and Obstetrics of the University of Louisville School of Medicine.

1. Hasson, James: Anaphylaxis Following Injection of Pituitary Extract, Brit. M. J. 1:242 (Feb. 8) 1930.
2. Wang, P. W., and Maxwell, J. P.: Protein Shock After the Administration of Pituitrin, Chinese M. J. 47:66 (Jan.) 1933.
3. Simon, F. A.: Hypersensitiveness to Pituitary Extract, J. A. M. A. 104:996 (March 23) 1935.
4. From Drs. David S. Hillis, J. I. Hofbauer, Walter McMann and William E. Studdiford.

a previous injection, but as will be seen later (table 2) the degree of sensitization in this case is less than in cases 1 and 2.

CASE 4.—G. W., aged 32, has a history of nine pregnancies and of a subcutaneous injection (presumably pituitary extract) after each delivery. Her mother has severe asthma and the patient is clinically sensitive to egg. She vomits and has smothering spells whenever she eats even a small quantity of egg. She often has attacks of urticaria. April 12, 1933, she was given pituitary extract following the birth of her tenth child. Within thirty minutes there was a marked swelling of the tongue and throat, a rash over the entire body, and considerable respiratory difficulty. Epinephrine was administered and four hours later she felt quite comfortable but still had some swelling of the tongue and throat.

CASE 5.—M. C., aged 36, has had ten children and four miscarriages. She has had an itching eruption for the past twelve to fifteen years, which is made worse by eating tomatoes. During the birth of four or five of her children she was given, by her private physician, injections to hasten the delivery (presumably pituitary extract). No abnormal reactions were noted after any of these injections. Her ninth baby was born in the hospital on March 18, 1933. Pituitary extract and ergot were given after delivery and shortly after the injections (a few minutes according to the patient's history; an hour and a half according to the hospital records) she became nauseated, vomited, "got red all over," and had swelling of the tongue, face and hands, and considerable difficulty in breathing. Epinephrine was given and an hour later she was much improved. The remainder of the puerperium was uneventful. Her tenth child was born April 9, 1935, but no pituitary was given.

These cases are summarized in table 1.

TABLE 1.—*Summary of Cases*

Case	Age	History of Allergy: Family	History of Allergy: Personal	Pregnancies	Previous Pituitary Injections	Date of Last Injection	Type of Reaction	Scratch Test Commercial Pituitary Extract: Mother	Scratch Test Commercial Pituitary Extract: Child
1	28	.....	.....	7	2*	11/18/34	Angioneurotic edema, dyspnea in 30 minutes, urticaria 6 days later	+	—
2	26	.....	.....	5	3	12/ 5/34	Angioneurotic edema, urticaria 6 days later	+	
3	35	.....	.....	2	2	2/ 3/35	Local swelling at injection site in 3 hours	+	
4	32	Mother has asthma	Urticaria, sensitive to egg	10	9*	4/12/33	Angioneurotic edema, urticaria, dyspnea 30 minutes later	+	—
5	36	.....	Eczema, sensitive to tomato	10+4	4 or 5*	3/18/33	Angioneurotic edema, dyspnea, nausea and vomiting, few minutes to 1½ hours	+	—

* Presumably.

Skin tests were made on these five patients with various preparations. The results are shown in table 2, from which it may be seen that sensitization is not limited to one particular brand of extract, for positive tests were obtained with five different brands comprising extracts of both the anterior and the posterior lobes. Pitocin, containing the oxytocic factor, gave negative tests, while pitressin, containing the vasoconstrictor and antidiuretic principles, gave positive tests. The controls, ergot and physiologic solution of sodium chloride, were negative. All these extracts gave negative tests on a normal control subject.

The results of a titration of the skin sensitivity by skin tests with serial dilutions in the five cases is shown in table 3. Evidently these patients have a high degree of skin sensitivity comparable to that seen in hay fever. The first two patients are more highly sensitive than the remaining three.

The skin tests recorded in table 4 were made in an effort to identify the constituent in the extract to which these patients are sensitized. Emulsions of fresh material were used in these tests in order to exclude the influence of preservatives and other possible extraneous material added in the manufacturing process. All tests were done in duplicate and all substances giving positive reactions were applied in the same way to a normal person with negative results.

It is apparent from table 4 that these patients are sensitized to some constituent of the pituitary gland and not to a preservative or other foreign material. It is apparent also that the specificity is not directed toward some species specific factor distributed throughout the various tissues of some particular species of animal or toward the brain tissue of one or more animal species. It is directed, at least in part, toward some constituent of the pituitary gland of several animal species, including man himself. The question arises Is this constituent a recognized hormone or some other substance present in the gland? The hormones of the pituitary gland, so far as their pharmacologic action is concerned, are known to be organ specific rather than species specific. The possibility exists, however, that some other constituent of the gland is likewise organ specific. The hormone of the posterior pituitary has not been synthesized or even isolated in crystalline form, but relatively pure preparations have been made, and the vasopressor and oxytocic factors have been separated by Kamm and his associates.[5]

TABLE 2.—*Skin Tests with Various Pituitary Preparations: Scratch Method*

	Case 1	2	3	4	5
Pituitary Extract (Obstetrical), Merrell	+	+	+	+	+
Pituitrin (Obst.), P. D. & Co.	+	+	+	+	+
Posterior Pituitary, B. W. & Co.	+	+	+	+	+
Pituitary, whole, Armour	+	+	+	+	+
Anterior pituitary, B. W. & Co.	—	—	—	—	—
Antultrin, P. D. & Co.	+	+	+	+	+
Anterior Pituitary Extract, Lily	+	+	+	+	+
Antultrin-G, P. D. & Co.	+	+	+	+	+ —
Antultrin-S, P. D. & Co.	—	—	—	—	—
Pitocin, P. D. & Co.	—	—	—	—	—
Pitressin, P. D. & Co.	+	+	+	+	+
Ergot, aseptic, P. D. & Co.	—	—	—	—	—
Physiologic solution of sodium chloride	—	—	—	—	—

Through the courtesy of Dr. Kamm we obtained special purified preparations of pitressin containing 10 pressor units, 0.4 oxytocic unit and 0.23 mg. total solids per cubic centimeter, and of pitocin containing 10 oxytocic units, 0.2 pressor unit and 0.034 mg. total solids per cubic centimeter. Skin tests were made with serial dilutions of these preparations and also with commercial pituitary extract (obstetric), which contains 10 units of both pressor and oxytocic principles and from 5 to

5. Kamm, Oliver; Aldrich, T. B.; Grote, I. W.; Rowe, L. W., and Bugbee, E. P.: The Active Principles of the Posterior Lobe of the Pituitary Gland, J. Am. Chem. Soc. **50**: 573, 1928.

10 mg. total solids per cubic centimeter. All five patients reacted in a similar manner to these tests. Table 5 shows a typical result in one case and also the result in a nonsensitive control subject.

From table 5 it may be seen that in the three preparations of posterior pituitary the capacity to give skin reactions in a sensitized patient is not proportional to the degree of pharmacologic activity but is more nearly proportional to the total solids. It is possible to separate, to a great extent, pharmacologic activity from capacity to give skin tests. Hence the sensitivity is not due to the vasopressor or oxytocic factors but to some other constituent of the gland.

The hormones of the anterior pituitary have neither been synthesized nor prepared and standardized in sufficiently pure form to be of much value in differential skin testing. From table 2 it may be seen that positive skin tests were obtained with three different preparations of the anterior lobe and negative skin tests with one preparation. Negative tests were also obtained with the anterior pituitary-like hormone obtained from pregnancy urine (Antuitrin-S).

Skin tests were made by the scratch method on the youngest babies of patients 1, 4 and 5 thirteen days, twenty-three months and six days, respectively, after birth. These tests were entirely negative to the same pituitary extracts used in testing the mothers. The ninth child of patient 5 also gave a negative test twenty-five months after birth.

Local passive transfer (Prausnitz-Küstner) was strongly positive with the serum of patient 1 (H. F.) on Nov. 21, 1934, thirteen days after the last injection of pituitary extract. Two recipients were used and the reaction was easily elicited both by the scratch method and by the intradermal method. The controls were negative. Commercial pituitary extract, 1:10 dilution, was used as the test substance. March 20, 1935, four months later, local passive transfer was attempted again on three recipients. Both commercial and human pituitary extracts were used as test substances. The tests were negative to both extracts in all three cases. The same test substances, however, gave strongly positive skin tests on the patient herself at the time the blood was taken for transfer. The skin tests remained strongly positive but reagins could no longer be demonstrated in the blood. This result is similar to that described by Tuft in a case of insulin sensitivity.[6]

March 4, 1935, local passive transfer was attempted in four recipients with the serum of cases 2 and 3 three months and one month, respectively, after the last pituitary injections. There was no transfer in any case. There was likewise no transfer in two recipients with the serum of the fourth patient, which was taken April 4, 1935, two years after the last injection of pituitary extract. But in the fifth case local passive transfer was definitely positive to commercial pituitary extract in two recipients on April 15, 1935, more than two years after the last injection of pituitary. No transfer could be demonstrated, however, with our preparation of human pituitary extract, to which the patient herself was only slightly sensitive and which was weaker than the commercial preparation, as shown by the fact that its intradermal injection in normal persons produced very little blanching of the skin.

Commercial pituitary extract in pharmacologic doses is not a good antigen either for the guinea-pig or for man under ordinary conditions. Five guinea-pigs were given intradermal injections of the extract (obstetric, 0.2 cc.) and tested after four days, nine days and three weeks by intradermal injection. The skin reactions in these animals were no different from those of the controls at any time.[7] Thirty primiparas were tested with

TABLE 3.—*Intradermal Tests (0.02 cc.) with Commercial Pituitary Extract, Obstetric*

Dilution	Case 1	Case 2	Case 3	Case 4	Case 5
1:1000	..	..	+++	+++	+++
1:10,000	+++	..	+	++	++
1:100,000	++	+++	+ —	+ —	+ —
1:1,000,000	+	++	—	—	—
1:10,000,000	+ —	+ —	—	—	—
Diluting fluid	—	—	—	—	—

TABLE 4.—*Skin Tests with Various Tissue Extracts: Scratch Method*

	Case 1	Case 2	Case 3	Case 4	Case 5
Cattle					
Pituitary	+	+	+	+	+
Pons	—	—	—	—	—
Cerebral cortex	—	—	—	—	—
Skeletal muscle	—	—	—	—	—
Blood serum	—	—	—	—	—
Hog					
Pituitary	+	+	+	+	+
Pons	—	—	—	—	—
Cerebral cortex	—	—	—	—	—
Skeletal muscle	—	—	—	—	—
Blood serum	—	—	—	—	—
Dog					
Pituitary	+	+	+	+	+
Pons	—	—	—	—	—
Cerebral cortex	—	—	—	—	—
Skeletal muscle	—	—	—	—	—
Blood serum	—	—	—	—	—
Human					
Pituitary	+	+	+	—*	—*
Pons	—	—	—	—	—
Cerebral cortex	—	—	—	—	—
Skeletal muscle	—	—	—	—	—
Lung	—	—	—	—	—
Thyroid	—	—	—	—	—
Pancreas	—	—	—	—	—
Adrenal	—	—	—	—	—
Kidney	—	—	—	—	—
Liver	—	—	—	—	—
Spleen	—	—	—	—	—

* Intradermal test positive.

TABLE 5.—*Skin Tests with Purified Preparations Compared with Commercial Posterior Pituitary Extract (Obstetric)*

	Pitressin (Purified)		Pitocin (Purified)		Posterior Pituitary Extract (Obstetric) (Commercial)	
	Scratch	Intradermal	Scratch	Intradermal	Scratch	Intradermal
A. Sensitive Patient (Case 3)						
Undiluted	—	++	—	++	+++	
	Slight blanching	Slight blanching				
1:10	—	—	—	—	+	
		Blanching		Slight blanching		
1:100	—	—	—	—	—	
		Slight blanching				
1:1000	—	—	—	—	—	+++
1:10,000	—	—	—	—	—	+
1:100,000	—	—	—	—	—	+ —
1:1,000,000	—	—	—	—	—	—
B. Nonsensitive Control						
Undiluted	—	—	—	—	—	—
	Slight blanching	Blanching	Slight blanching	Blanching	Slight blanching	Blanching
1:10	—	—	—	—	—	—
		Blanching		Slight blanching		Blanching
1:100	—	—	—	—	—	—
		Slight blanching				Slight blanching
1:1000	—	—	—	—	—	—
1:10,000	—	—	—	—	—	—
1:100,000	—	—	—	—	—	—
1:1,000,000	—	—	—	—	—	—

6. Tuft, Louis: Insulin Hypersensitiveness: Immunologic Considerations and Case Reports, Am. J. M. Sc. **176**: 707 (Nov.) 1928.

7. The blanching effect of the vasopressor hormone interferes to a certain extent with the interpretation of skin tests in the guinea-pig; hence a slightly positive reaction might be unapparent.

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pituitary extract, obstetric, 1:10 dilution, by scratch and intradermal methods at two different times; namely, at the time of delivery when they received a postpartum injection of pituitary and nine days later before they left the hospital. In sixteen of these cases additional skin tests were made about six weeks later at the postpartum clinic. A diagrammatic record of the skin reactions was kept in each case so that comparisons could be made between the first and second or the first and third reactions in any one patient. Such comparisons were made, but no evidence of sensitization was found in any case. Apparently special conditions are necessary for the development of hypersensitiveness to pituitary extract in man.

COMMENT

Hypersensitiveness to pituitary extract seems to be uncommon. However, the occurrence of five cases in one hospital in less than two years suggests the possibility that some cases have been unrecognized and others unreported. Pituitary preparations are used extensively in the practice of medicine, especially in obstetrics, and it seems that this condition would be worth keeping in mind in cases of obscure reactions following delivery when pituitary extract has been used.

This hypersensitiveness cannot be produced at will but occurs only in exceptional cases under conditions that are unknown at the present time. It is not merely a matter of certain individuals being predisposed while others are not. The predisposition, even in susceptible persons, is not always present. This is apparent from the fact that these patients had previous injections of pituitary extract which were without effect in producing hypersensitiveness. This predisposition then is apparently present only in certain individuals at certain times. The analogy with hay fever is at once apparent. Only a relatively small percentage of those who are exposed become sensitized, and of those who do become sensitized many were exposed ineffectively for years before sensitization developed. The persistent, high degree of sensitivity, the presence of reagins and the family or personal history of allergy in two of the patients constitute further evidence that these are not cases of the ordinary anaphylactic type of hypersensitiveness such as may be produced at will in laboratory animals and in man by the injection of a foreign serum.[8]

The absence of positive skin tests in four children born of three sensitized mothers with positive skin tests constitutes evidence against the idea of transplacental transmission of hypersensitiveness.

These cases undoubtedly represent organ specificity rather than species specificity, the specificity being directed toward some constituent of the pituitary gland of several animal species, including man.

SUMMARY

1. Hypersensitiveness to pituitary extract occurs in only a small percentage of exposed persons.

2. Skin tests with various substances indicate that this is an organ specific hypersensitiveness directed toward some constituent of the pituitary gland of several animal species, including man.

3. This constituent is neither the vasopressor nor the oxytocic principle of the posterior pituitary.

Brown Building.

8. Coca, A. F.; Walzer, Matthew, and Thommen, A. A.: Asthma and Hay Fever in Theory and Practice, Springfield, Ill., Charles C. Thomas, 1931, p. 38. Simon, F. A., and Rackemann, F. M.: The Development of Hypersensitiveness in Man, J. Allergy **5**: 439 (July) 1934.

MENSTRUAL EDEMA

THE REPORT OF A CASE CONTROLLED BY EMMENIN BUT NOT BY THEELOL OR THEELIN

ARTHUR J. ATKINSON, M.D.
AND
ANDREW C. IVY, PH.D., M.D.
CHICAGO

Thomas[1] has reported two cases in which edema occurred regularly and only during menstruation. One of these patients was given hypodermic injections of anterior pituitary extract and later the gonadotropic substance of pregnancy urine. With the latter therapy he was able to prevent the edema. Sweeney[2] reported observations on the body weight of forty-two normal healthy young women. Thirty per cent showed a gain of 3 or more pounds sometime during the menstrual cycle, usually just before the menstrual flow was established. Some had a true pitting edema. Okey and Stewart[3] have also followed the weight of twenty women students and found an increase in weight of from 1 to 3 pounds (453 to 1,360 Gm.) in one fourth of their subjects. Almost all the students who showed the gain in weight gave histories of menstrual headaches or discomfort. Eufinger and Spiegler[4] observed a tendency to edema in 47 per cent of their subjects.

We have had the opportunity of observing a patient with pronounced menstrual edema of long standing in which certain blood chemical studies have been made and the condition prevented by the administration of

TABLE 1.—*Studies of Blood Lipids and Water Displacement Before and During Preliminary Treatment*

Date, 1934		Free Cholesterol, Mg. per 100 Cc.	Total Cholesterol, Mg. per 100 Cc.	Total Fatty Acid, Mg. per 100 Cc.	Water Displacement of One Foot, Cc.	Menstrual Period	Medication
Sept.	7	39.7	141.5	469.7			Gonadotropic principle from pregnancy urine
	13	46	144.1	465.1		Sept. 12-16	
	17	51.2	183.4	454.3			
	22	48.9	232.2	448.6			
	27	59.6	204.4	431.2			Oct. 17, 5 cc.
Oct.	2	58.5	154.6	454.3		Oct. 13-17	25, 10 cc.
	8	57.5	149.3	446.4			Nov. 2, 7 cc.
	16	58.5	183.4	448.6			9, 10 cc.
	22	58.4	138.6	432.8			12, 10 cc.
	27	57.5	153	400.4	960		17, 10 cc.
Nov.	1	56.5	154.6	436.9	855	Nov. 9-12	24, 10 cc.
	6	56.3	160.8	408.1	960		28, 10 cc.
	10	57.5	168	531.8	940		29, 6 cc.
	15	56.5	207	423.5	920		Dec. 3, 10 cc.
	20	59.7	180.6	350	860		8, 10 cc.
	27	43.9	141.5	331	920		12, 10 cc.
Dec.	1	39.7	148.7	354	855	Dec. 9-12	
	6	41.8	154.6	369.6	880		
	11	40.8	141.5	362	870	Dec. 16-20	
	15	42.9	146.7	354	920		
	20	58.3	178	408	970		
	26	54.2	162.4	331	870		
	29	50.7	167.7	402.9	855		
1935							
Jan.	4	61	220	485	920		
	9	65.5	227.9	331	850	Jan. 14-20	Emmenin 12 cc. daily Jan. 25-March 17
	14	59.6	183	424	970		
	19	53.4	178	447	945		
	24	51	201.7	424	875		
	29	70	193.8	323.6	850		
Feb.	4	72.2	208.3	400	855	Feb. 8-12	
	9	57.5	165	390	875		
	14	71	225.3	484	870		
	25	70	222.7	477	840		
March	2	60.6	204.4	515.9	840		
	7	53.4	230.6	402	840	March 8-12	
	12	58.5	204.4	408	840		

From the Departments of Medicine and Physiology, Northwestern University Medical School.

1. Thomas, W. A.: Generalized Edema Occurring Only at the Menstrual Period, J. A. M. A. **101**: 1126 (Oct. 7) 1933.
2. Sweeney, J. S.: Menstrual Edema, J. A. M. A. **103**: 234 (July 28) 1934.
3. Okey, Ruth, and Stewart, Dorothey: J. Biol. Chem. **99**: 717 (Feb.) 1933.
4. Eufinger, H., and Spiegler, R.: Arch. f. Gynäk. **135**: 223, 1928.

emmenin (Collip) but not by theelol and theelin. The study has extended over a period of more than one year.

The more pertinent points are briefly as follows:

History.—The patient is now 47 years of age and unmarried. Since the onset of menstruation at the age of 13 years the menses have been complicated by a swelling of the feet and legs. The feet would begin to swell about one week before menstruation and the swelling did not recede until a week after the cessation of the flow. The swelling would pit on pressure. During the past five years the edema has been worse than it had been previously, and considerably more marked during the past year with some edma constantly present. The edema showed diurnal variation, being greater at bedtime. Frontal headaches, epistaxis and herpes simplex usually have accompanied the edema. Menopausal symptoms have not appeared and the periods have been regular, occurring in a twenty-six to thirty day cycle and lasting four days. The body temperature and blood cells were normal. The bleeding time was normal. The blood pressure was 138 systolic, 88 diastolic. There were no casts and no albumin in the urine. The basal metabolic rate was minus 19. The blood proteins were normal and showed no appreciable variation during a complete menstrual cycle. The individual determinations at weekly intervals were 8.52, 9.1, 9.25 and 8.6 Gm. per hundred cubic centimeters. Roentgen study of the sella turcica revealed no abnormality.

TABLE 2.—*Values of Water Displacement of One Foot During Administration of Theelol, Theelin and Emmenin*

Date, 1935	Water Displacement of One Foot, Cc.	Menstrual Period	Medication
April 3	850	.....	No emmenin since March 17
9	885		
13	900		
15	880	April 15-18	
20	890		
25	860	.....	April 27, 3 theelol capsules daily
29	909		
May 3	910		
9	920		
14	945	May 12-16	
19	960	.....	May 20-June 5, 2 cc. theelin every alternate day
23	945		
27	930		
30	950		
June 3	920		
	Patient did not measure swelling which she says remained until June 17, when it started to decrease but was not markedly diminished until about July 12	June 9-12	June 8-18, 5 cc. emmenin daily
			June 23-28, 10 cc. emmenin daily
			June 28, on 15 cc. emmenin daily
July		July 8-12	
29	855		
23	870		
28	845		
29	835		
Aug. 1	850		
5	845	Aug. 3-8	
9	835		
11	830		

Preliminary Therapeutic Tests.—Desiccated thyroid (0.12 Gm. daily) was administered. The basal metabolic rate was elevated to normal, but the edema was not influenced. The degree of edema was followed daily throughout the study by measuring the water displacement of the feet. The edema was not influenced by ammonium nitrate, potassium chloride, calcium gluconate or viosterol therapy.

Blood Lipid Studies.—It was decided to study the blood lipids during the menstrual cycle in this patient both before and after endocrine therapy.

This was considered important because of the observations of Okey and Boyden[5] and others.[6] Okey and Boyden found that blood cholesterol decreased almost invariably during or just prior to the onset of the menses. This decrease was usually preceded or followed by a rise in blood cholesterol above the normal average. This was confirmed by Kaufmann and Mühlbock,[6] who further stated that in patients with ovarian disturbances the rhythmic variation in blood cholesterol did not occur. Okey[5] noted in addition that Dahlmos and Solé[7] and Degkwitz[8] had suggested that cholesterol acts in the blood as a lyophobic colloid, while lecithin acts a lyophilic colloid. Therefore Okey, observing variations in the cholesterol-lecithin ratio in blood during the menstrual period, has intimated that this may be the cause of the edema; i. e., that a low cholesterol and a relatively high lecithin content may cause the tissues to imbibe water.

We have determined the total and free cholesterol and the total fatty acids at five day intervals in this patient over a period of six months. During a portion of this period no therapy was given; at other times gonadotropic principle from pregnancy urine and emmenin[9] were given.

Without treatment a regular premenstrual fall in blood cholesterol did not occur (table 1). According to Kaufmann and Mühlbock[6] this would indicate an ovarian dysfunction.

Pregnancy-urine extract (12,000 rat units) was then given during a period of two months. A reduction in the amount of edema resulted. On withdrawal the edema returned. It was then given again, but with little effect on the edema, and finally was discontinued because it apparently had produced metrorrhagia. The blood cholesterol and total fatty acids were not significantly altered (table 1).

Administration of Emmenin (ether insoluble complex from placenta, relatively inert in ovariectomized rats, but estrogenically active in the presence of immature or atrophic ovaries).—The administration of emmenin (12 cc. daily, 60 day oral units-Collip) resulted in a complete disappearance of the edema, including that which persisted between periods (table 1). When the emmenin was withdrawn, the edema reappeared with the next menstrual cycle. While the patient was taking emmenin there was no significant change in the basal metabolic rate (—17.5) and the menstrual headaches did not occur. A significant change in the blood lipids was not observed during the period of study (tables 1 and 3).

TABLE 3.—*Blood Lipid Studies During Administration of Emmenin*

Date, 1935	Free Cholesterol, Mg. per 100 Cc.	Total Cholesterol, Mg. per 100 Cc.	Total Fatty Acid, Mg. per 100 Cc.	Water Displacement of One Foot, Cc.	Menstrual Period	Medication
Aug. 14	51	180.8	660	Aug. 9, 1935-		
19	52.3	159.1	625.5			
24	63.7	120.5	454	Jan. 7, 1936		15 cc. of emmenin daily since June 28
29	65.8	170.3	500			
Sept. 4	61.4	227.7	508.2	830-840		
9	55.4	160.6	446.6		Sept. 1-4	
14	58.5	178.2	446.6			
19	58.5	150.3	469.7			
24	62.7	160.4	460.2			
29	64.8	160.8	480.6			
Oct. 5	70	212.2	450.9		Sept. 30-Oct. 3	
						Emmenin stopped Oct. 14
					Oct. 29-Oct. 23	
Nov. 18	64.8	160.8	509			
23	59.6	160.1	460.4			Emmenin started Nov. 8
30	60.6	163.4	469.7			
Dec. 5	61.7	172.9	477.4			
10	50.2	152	415.8		Dec. 7-10	
16	60.2	172.9	477.4			
21	66.9	160.1	492.8			
29	55.4	160.4	469.7			
1936						
Jan. 2	60.6	172.9	508.4			
7	53.3	173.5	515.9			

Administration of Theelin.—Collip, Browne and Thomson[10] regard emmenin as a hydrolyzable compound of trihydroxyestrin (theelol), the active principle of which is converted to some more potent substance in the presence of ovarian tissue. Theelol is liberated from emmenin by autoclaving with acetic acid. Although theelol, like emmenin, is active by mouth, the difference in the solubility of the two may render possible physiologic differentiation in activity; or more probably

5. Okey, Ruth, and Boyden, Ruth E.: J. Biol. Chem. **72**: 261 (March) 1927.

6. Kaufmann, C., and Mühlbock, O.: Arch. f. Gynäk. **134**: 603, 1928; **136**: 478, 1929.

7. Dahlmos, J., and Solé, A.: Biochem. Ztschr. **227**: 401, 1930.

8. Degkwitz, R.: Klin. Wchnschr. **9**: 2336 (Dec. 13) 1930.

9. The gonadotropic principle from pregnancy urine, theelol and theelin were supplied through the courtesy of Dr. Oliver Kamm of Parke Davis & Co. The emmenin was supplied by Ayerst, McKenna and Harrison, Ltd.

10. Collip, J. B.; Browne, J. S. L., and Thomson, D. L.: Endocrinology **18**: 71 (Jan.-Feb.) 1934.

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emmenin may contain an unknown substance in addition to the estrin complex. Except for these possibilities theelol, in doses of equal estrogenic potency, should be effective. To test this possibility, theelol was given the patient.

Theelol (150 rat units) was given daily for one month. The edema was not influenced (table 2).

Administration of Theelin.—Because emmenin has a powerful estrogenic potency when given orally, it was decided, to ascertain if theelin hypodermically would prevent the edema. Theelin (600 rat units every alternate day) was given for two and one-half weeks. In the doses used it had no effect on the edema (table 2). One might not expect such doses to have an effect because it has been stated that very large doses (65,000 rat units)[11] are required to produce a definite effect in women.

Following the trial with theelol and theelin, emmenin again had a beneficial effect (table 3).

Two other patients with a similar history of premenstrual edema have been given emmenin with subsidence of the swelling.

SUMMARY

Certain therapeutic procedures administered with the object of preventing edema failed with the exception of the administration of the gonadotropic principle from pregnancy urine, which was slightly effective, and emmenin (Collip), which was markedly effective. The blood lipids, which varied considerably, were followed for more than ten months in one patient and were not significantly or strikingly influenced.

55 East Washington Street — 303 East Chicago Avenue.

11. Kaufmann, C.: Zentralbl. f. Gynäk. **57**: 42 (Jan. 7) 1933.

THE FREI TEST FOR LYMPHOGRANULOMA INGUINALE

EXPERIENCES WITH ANTIGENS MADE FROM MOUSE BRAIN

MAURICE J. STRAUSS, M.D.
AND
MARION E. HOWARD, M.D.
NEW HAVEN, CONN.

Since Frei [1] demonstrated that an antigen, made from sterile pus aspirated from previously unruptured abscesses, produced a reaction in patients with lymphogranuloma inguinale when injected intradermally, many attempts have been made to find other reliable sources for this antigen. Satisfactory antigens have been made by grinding up infected glands and periglandular tissues, and there have been reports of antigens made from pus from rectal fistulas occurring in patients with the late manifestations of this disease. This reaction is an important aid in the diagnosis of lymphogranuloma inguinale.

It is now well known that mice can be infected with lymphogranuloma inguinale by intracerebral inoculation of material from early cases and that the infection can be passed through several generations. One of the means of determining whether an animal has been infected with the disease is by making an antigen from the brain tissue and testing this on patients known to have the disease. Grace and Suskind [2] state that "evidence of the presence of the virus of lymphogranuloma inguinale in the brains of the dead mice was furnished by the production of highly potent Frei antigens from these brains" and also that "normal mouse brains prepared and tested as Frei antigens do not produce any appreciable reactions." An antigen made from infected mouse brain has recently been produced and sold for the diagnosis of lymphogranuloma inguinale.

We have been interested in transmitting this disease to mice and in testing antigens made from mouse brain and have noted that such antigens when freshly prepared and injected into the skin of normal controls have regularly produced a small erythematous papule about 2 mm. in diameter.

EXPERIMENT 1.—In order to see whether the antigen prepared from mouse brain and sold commercially produced a similar reaction in normal persons, the following experiment was performed. We were used as normal subjects and the following substances were injected intradermally: (1) a tested Frei antigen made from pus from an inguinal abscess, (2) an antigen [3] made five months before from the brain of a mouse infected with lymphogranuloma inguinale, (3) an antigen made five and one-half months before from the brain of a normal mouse, and (4) the commercial Frei antigen. At the end of forty-eight hours there was no reaction at the site of injection of the antigen made from pus, but at the site of each of the other injections there was seen a dome-shaped papule from 5 to 7 mm. in diameter with a surrounding erythematous area about 1.5 cm. in diameter.

Fig. 1 (subject M. J. S.).—Results in experiment 1. The numbers correspond to the numbers of the antigens as given in the text.

It was apparent that all these reactions were more marked than had been seen before in normal subjects. That the subjects did not have lymphogranuloma inguinale was clearly shown in two ways: (1) the negative reaction to a potent Frei antigen made from human material and (2) the fact that an antigen made from the brain of a normal mouse gave the same reaction as one from the brain of an infected mouse. The only difference between our previous experiments and the present one was that the material injected in this experiment was five months or more old and previously antigens had been tested as soon after their preparation as possible. Accordingly, an antigen was freshly prepared from the brain of a normal mouse and injected intradermally at the same time as the old antigen from normal mouse brain that had been used before. There was a marked difference in the results, the freshly prepared antigen producing a papule only 2 mm. in diameter and the old antigen a papule 6 mm. in diameter.

From the Department of Internal Medicine and the Division of Dermatology, Yale University School of Medicine.

1. Frei, Wilhelm: Klin. Wchnschr. **4**: 2148 (Nov. 5) 1925.
2. Grace, A. W., and Suskind, F. H.: Proc. Soc. Exper. Biol. & Med. **32**: 71 (Oct.) 1934.
3. The antigen was prepared by grinding the brain of one mouse under aseptic precautions with a mortar and pestle and without any abrasive until a smooth paste was obtained. To this paste 4 cc. of Savita broth was added drop by drop with constant grinding. This mixture was then sealed in tubes and inactivated in the water bath at 60 C. for two hours the first day and one hour the second day.

It seemed therefore that some change had taken place over a period of five months in the antigen made from normal mouse brain so that on intradermal injection into normal subjects a reaction similar in appearance to a positive Frei reaction was induced.

EXPERIMENT 2.—The following materials were injected intradermally in the same subjects and, in addition, in a patient in the wards of the New Haven Hospital who showed no evidence of having or having had lymphogranuloma inguinale:

Fig. 2 (subject M. J. S.).—Results in experiment 2. The numbers correspond to the numbers of the antigens as given in the text.

(1) a tested Frei antigen made from pus from an inguinal abscess, (2) an antigen made seven months before from the brains of mice infected with lymphogranuloma inguinale, (3) an antigen made seven and one-half months before from the brain of a normal mouse, (4) the commercial Frei antigen, (5) an antigen made four weeks before from the brain of a normal mouse, and (6) the same antigen, which had been dried in vacuo[4] immediately on preparation and prepared for injection on the day of the experiment.

TABLE 1.—*Results in Experiment 3*

Injections on 10/8/35	Readings 10/10/35 Size of Papules in Millimeters			
	Normal Subjects		Patients with Lymphogranuloma Inguinale	
Antigen and Date of Preparation	M. E. H.	M. J. S.	M. G.	S. S.
1. Lymphogranuloma mouse brain 1/16/35	4	5	4	5
2. Normal mouse brain 1/21/35	0	4	4	6
3. Normal mouse brain 8/8/35	6	4	6	8
4. Normal mouse brain; dried 8/8/35, prepared 9/6/35	2	0	3	4
5. Normal mouse brain; dried 8/8/35, prepared 10/8/35	4	4	2	4
6. Normal mouse brain in saline solution 10/7/35	2	4	4	3
7. Normal mouse brain in broth 10/7/35	0	4	4	5
8. Lymphogranuloma mouse brain 10/7/35	2	4	6	7
9. Frei antigen made from infected glands	0	0	6	6
10. Commercial Frei antigen	4	5	Not done	Not done

Since the results in all three subjects were closely parallel, they will be given in detail for only one subject (M. J. S.). To antigen 1 there was no reaction; to 2 there was a papule 4 mm. in diameter with a surrounding erythema 10 mm. in diameter; to 3 a papule 5 mm. in diameter with a surrounding erythema 12 mm. in diameter; to 4 a papule 7 mm. in diameter with a surrounding erythema 14 mm. in diameter; to 5 a papule 6 mm. in diameter with a surrounding erythema 14 mm. in diameter, and to 6 a papule 3 mm. in diameter with no appreciable surrounding erythema.

4. The antigen was prepared from the brain of a normal mouse and dried in vacuo in the frozen state, the Mudd Flosdorf apparatus being used. It was prepared for use subsequently by making it up to the original volume with saline solution.

Again the antigen made from pus gave entirely negative results. The other antigens made from mouse brain gave appreciable reactions with some minor variations between the individual antigens, and it was noteworthy that an antigen prepared only one month before had already developed the ability to induce positive reactions. The same mouse brain antigen that had been preserved in the dried state had not. The remainder of this antigen was kept in the icebox for one month for a further experiment.

EXPERIMENT 3.—The two original subjects were used with the addition of two patients in the early active stages of lymphogranuloma inguinale. The antigens used were as follows: (1) lymphogranuloma mouse brain prepared more than eight months before, (2) normal mouse brain prepared more than eight months before, (3) normal mouse brain prepared two months before, (4) the same mouse brain dried two months before and prepared for injection one month before, (5) the same mouse brain dried two months before and prepared for injection on the day of the experiment, (6) normal mouse brain prepared the day before the experiment, saline solution being used instead of broth, (7) normal mouse brain prepared with broth the day before the experiment, (8) lymphogranuloma mouse brain prepared the day before the experiment, (9) a tested Frei antigen made from excised glands from one of the patients used in the experiment, and (10) the commercial Frei antigen (used in the two normals only). The size of the resulting papules appears in table 1.

With a total of thirty-eight intradermal injections, it was not surprising that a few discrepancies appeared. At the time of injection it was suspected that antigen 2 in the case of M. E. H. was injected almost entirely hypodermically instead of intradermally. We cannot explain other discrepancies such as the failure to react of antigen 4 in M. J. S. and antigen 7 in M. E. H. and the unusually strong reaction of N. S. to antigen 3. In spite of these discrepancies a few facts were evident. It was clear that the two normal subjects had not been infected with lymphogranuloma inguinale, as shown by the absence of reaction to antigen 9. The

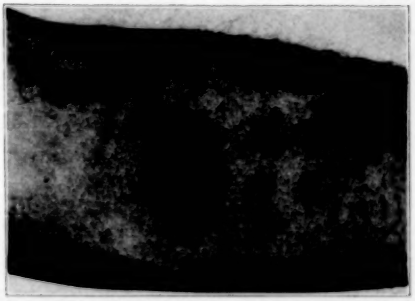

Fig. 3 (subject M. J. S.).—Results in experiment 3. The numbers correspond to the numbers of the antigens in table 1.

results with all the mouse brain antigens showed that, regardless of whether or not the mice had been infected with lymphogranuloma inguinale, an antigen made from mouse brain was capable of producing an appreciable reaction when injected intradermally.

The reactions induced by antigen 4 seem to indicate that the change which takes place in mouse brain antigens causing these false reactions may take place within two months even if the antigen is preserved in the dried

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state. Comparisons of the papules induced by antigens 6 and 7 make it appear that at the time of preparation there was no marked difference between an antigen prepared with saline solution and one prepared with broth.

EXPERIMENT 4.—Although the normal subjects used in these experiments showed a marked reaction to antigens made from mouse brain from the first, it was possible that the succeeding reactions were due to an acquired sensitivity to mouse brain. To rule this out, various antigens were injected intradermally into six subjects in whom there was neither history nor evidence of lymphogranuloma inguinale and who had never had injections of any material made from mouse brain. The same antigens were injected into three patients with lymphogranuloma inguinale and in one questionable case. The following antigens were used: (1) a Frei antigen made from pus, (2) a Frei antigen made from excised glands removed from one of the patients used in the experiments, (3) lymphogranuloma mouse brain prepared more than nine months before, (4) lymphogranuloma mouse brain prepared one month before, (5) the commercial Frei antigen, (6) normal mouse brain prepared more than nine months before, (7) normal mouse brain prepared more than three months before, (8) normal mouse brain prepared with saline solution instead of broth approximately two months before, (9) normal mouse brain prepared with broth the day before the experiment, and (10) normal mouse brain prepared with saline solution the day before the experiment. The results appear in table 2.

TABLE 2.—*Results in Experiment 4*

Antigen and Date of Preparation	Injections on 11/12/35	Readings on 11/14/35 Size of Papules in Millimeters									
		Normal Subjects						Patients with Lymphogranuloma Inguinale			Questionable Case
		Male				Female		Male			Female
		N. D'E.	H. H.	W. J.	W. P.	M. M.	D. L.	N. S.	M. G.	J. M.	F. McV.
1. Frei antigen made from pus	0	3	0	0	1	0	8	6	5	2
2. Frei antigen made from infected glands	0	0	0	0	0	0	7	6	5	2
3. Lymphogranuloma mouse brain 2/5/35	7	5	4	6	3	4	5	6	6	3
4. Lymphogranuloma mouse brain 10/7/35	6	6	2	6	4	2	7	6	7	5
5. Commercial Frei antigen	7	7	5	6	3	2	8	6	5	5
6. Normal mouse brain 2/1/35	6	4	2	4	3	2	4	4	5	4
7. Normal mouse brain in broth 8/5/35	8	5	7	7	5	6	4	6	6	5
8. Normal mouse brain in saline solution 9/14/35	7	5	5	7	3	4	4	4	3	4
9. Normal mouse brain in broth 11/11/35	6	4	4	7	4	6	7	3	4	5
10. Normal mouse brain in saline solution 11/11/35	6	6	5	6	3	5	4	4	4	4

It should be noted that F. McV. was not included in the group of patients having lymphogranuloma inguinale because many tests in this patient with Frei antigens made from human material have resulted in papules that were smaller than those generally considered positive tests. This patient was a young white woman in whose history and physical examination there was nothing suggestive of lymphogranuloma inguinale. She was referred for Frei tests because of an unhealed ulceration over the sacrum which followed the surgical removal of a pilonidal cyst. As can be seen from table 2, the difference between the size of the papules resulting from intradermal injections in this patient and in patients with typical lymphogranuloma inguinale was greater with Frei antigens made from human material than with antigens made from the brains of mice inoculated with lymphogranuloma inguinale.

The group of patients could be definitely differentiated from the group of normal subjects by the reaction to the two antigens (1 and 2) made from human material. Throughout the experiments it was quite evident that there was considerable variation both in the antigenic properties of the materials injected and in the sensitivity of different subjects. The individual sensitivity of different subjects would explain the two weak reactions to one of the Frei antigens in two of the normal subjects (H. H. and M. M.). It was impossible to draw the conclusion that these two subjects had lymphogranuloma inguinale, as in each case the reaction was considerably less than that considered as a typically positive Frei test, and in each case the subject failed to react at all to another Frei antigen.

That mouse brain is capable of inducing in normal subjects a reaction sufficiently marked to be mistaken for a Frei reaction was evident from an analysis of the results. Forty-eight injections of mouse brain were made in the normal controls. In twenty-one, or 43.8 per cent, the reactions were 6 mm. or more in diameter and indistinguishable from positive Frei reactions. In seventeen, or 35 per cent, they were from 4 to 5 mm. in diameter or easily mistakable for positive Frei reactions. In the group of patients having lymphogranuloma inguinale we could only consider in the same manner the injections of normal mouse brain. There were twenty such injections. With the same criteria as before, three of these, or 15 per cent, were indistinguishable from positive Frei tests, but fifteen, or 75 per cent, were easily mistakable for positive Frei tests. It was also noted that of twenty injections of lymphogranulomatous material made either from mouse brain or from human material in this group, nine, or almost one-half the reactions, were less than 6 mm. in diameter.

That intradermal injection of mouse brain in patients known to have lymphogranuloma inguinale is a valuable method for determining whether the mouse has been infected with lymphogranuloma inguinale is evident from a comparison of the papules resulting from such injections with those resulting from the injection of material from normal mice. In table 2 it can be seen that in isolated instances the injection of normal mouse brain in the three patients with typical lymphogranuloma inguinale induced a reaction easily mistakable for a true Frei reaction. The majority of these injections resulted in the formation of a papule less than 6 mm. in diameter. Injection in the same patients of antigens made from the brains of mice that had been inoculated with the disease resulted with few exceptions in larger papules. In these patients the papules induced by lymphogranuloma mouse brain averaged 6.22 mm. in diameter and those induced by normal mouse brain averaged 4.4 mm. Comparison of the results in these three patients with the results in the questionable diagnostic case shows that there was an appreciable difference when lymphogranuloma mouse

brain was used, the three antigens giving rise to papules averaging 4.33 mm. against 6.22 mm. in the known cases.

COMMENT

The circular that accompanies the Frei antigen sold commercially gives as the criterion of a positive Frei reaction "an erythematous papule not less than six millimeters in diameter surrounded by a less erythematous zone of varying size." It must be admitted that the size of a papule does not lend itself to exact measurement and for this reason it is quite conceivable that a papule 5 or even 4 mm. in diameter might frequently be read as a positive test. The experiments cited show that, irrespective of whether the mouse had been infected with lymphogranuloma inguinale or not, an antigen made from the brain of a mouse may induce a reaction similar to the Frei reaction when injected intradermally. In this series of experiments nearly half the reactions to mouse brain antigens injected intradermally into normal subjects were of such a nature as to make them indistinguishable from what is recognized as a positive Frei test, and some of the reactions were of such size and character as to make them easily mistakable for positive Frei reactions.

False reactions may result from freshly prepared mouse brain antigen but in our experience are to be watched for when using material that has been stored a month or more. The indications are also that preparation of the antigens with saline solution instead of broth does not influence the reaction. It would seem from experiment 2 that, if the antigen is preserved in the dried state, the appearance of the false reaction may be prevented for a period of one month, although

Fig. 4 (subject N. D'E.).—Results in experiment 4. The numbers correspond to the numbers of the antigens in table 2.

the results of the third experiment make it seem that, in some antigens at least, the change may take place even in the dried state by the end of two months.

The regularity with which tested Frei antigens made from human material were negative is conclusive proof that the normal subjects did not have lymphogranuloma inguinale; and even if the total number of subjects was small, being only thirteen, the fact that definite reactions to antigens made from the brains of normal mice occurred in all of them, and reactions indistinguishable from positive Frei tests in many instances, justifies the conclusion that sensitivity to mouse brain is common enough to lead to a large number of false positive reactions if mouse brain antigens are used for the diagnosis of lymphogranuloma inguinale.

CONCLUSIONS

1. Some change occurs in antigens made from mouse brain within a few weeks after preparation which, when injected intradermally, gives rise to a reaction almost indistinguishable from a true positive reaction.
2. The nature of this change is at present unknown.
3. This occurs in antigens made from the brains of normal mice as well as in antigens made from the brains of mice inoculated with lymphogranuloma inguinale.
4. The false reaction is induced in normal subjects as well as in patients with lymphogranuloma inguinale.
5. For this reason Frei antigens made from mouse brain would not appear to be suitable for the routine diagnosis of lymphogranuloma inguinale.

41 Trumbull Street.

AUTOTRANSFUSION IN THE TREATMENT OF WOUNDS OF THE HEART

CHARLES M. WATSON, M.D.
AND
JAMES R. WATSON, M.D.
PITTSBURGH

Penetrating wounds of the heart usually are rapidly fatal. In spite of the fact that the infrequency of the condition prevents any one man from acquiring a wide experience, analysis of reports collected from the literature, as well as facts obtained from animal experimentation, have established methods which are proving their value in the increased number of successful cases that have been reported in the last few years. This is verified by the periodic reviews of the literature, which have shown a decline in the mortality rate from 63.7 per cent, as reported by Peck [1] in 1909, to 34 per cent, as reported by Ramsdell [2] in 1934, given in the accompanying table. It is our desire to call attention to a procedure which, if used more frequently in certain types of injury, may possibly result in a further reduction in the mortality rate. Descriptions of the various surgical approaches, as well as the technic of cardiorrhaphy, need not be included here, for they may be found in many articles on the subject, notably those by Beck [3] and Cutler.[4]

Hemorrhage is the most common cause of death in the group in which the patient lingers sufficiently long to reach the hospital, whether it is limited to the pericardial cavity, where it gradually chokes the heart by increasing the intrapericardial pressure, or whether it escapes into one of the pleural spaces, causing exsanguination. It is difficult to determine which of these two mechanisms occurs the more frequently, although, according to Singleton,[5] massive hemorrhage is probably a more frequent cause of death than cardiac tamponade. In a series of seven cases of stab wound and three cases of gunshot wound of the heart which he reported, hemorrhage into one of the pleural cavities was present in six and was the direct cause of death in three of these. Cardiac tamponade was found in two cases.

1. Peck, C. H.: The Operative Treatment of Heart Wounds, Ann. Surg. **50**: 100-134 (July) 1909.
2. Ramsdell, E. G.: Stab Wounds of the Heart, Ann. Surg. **99**: 141-151 (Jan.) 1934.
3. Beck, C. S.: Wounds of the Heart. The Technic of Suture, Arch. Surg. **13**: 205-227 (Aug.) 1926.
4. Cutler, E. C., and Beck, C. S.: Surgery of the Heart and Pericardium, in Nelson's Surgery **4**: 267-286, 1927.
5. Singleton, A. O.: Wounds of the Heart and a Discussion of the Causes of Death, Am. J. Surg. **20**: 515-532 (June) 1933.

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When there is a communication between the pericardial and the pleural cavities with an extensive loss of blood, transfusion is secondary in importance only to the control of the bleeding. However, it is not always easy to find a suitable donor, and unless professional donors are readily available considerable time may be lost before the necessary blood can be obtained.

Fig. 1.—Laceration of pericardium enlarged to show location of heart wound.

A procedure suggested by Rhodes,[6] which represents the easiest and quickest method of combating this blood loss, is recovery and reinfusion of the patient's own blood. Autotransfusion, or autohemotransfusion as it is sometimes called, is not a new idea, although its modern application has been limited almost entirely to the use of blood found in the peritoneal cavity following severe intra-abdominal hemorrhage, notably that resulting from rupture of an ectopic pregnancy. The use of blood obtained from the pleural cavity following injury to the thoracic cage or its contents has been regarded with suspicion because of the fear of contamination. In spite of this objection there have been no unfavorable results reported in the few cases in which it has been used, and when cultures were taken the blood was found to be sterile.

Decline in Mortality Rate from Penetrating Wounds of the Heart, as Shown in Reviews of Cases Reported in Medical Literature

Author	Total Cases	Recovered	Deaths	Mortality, per Cent
Perk, C. H.: Ann. Surg. **50**:160 (July) 1909	160	58	102	63.7
Pool, E. H.: Ann. Surg. **55**:485 (April) 1912	77	42	35	45.5
Smith, W. R.: Ann. Surg. **78**:666 (Dec.) 1923	58	39	19	33.0
Schoenfeld, H. H.: Ann. Surg. **87**:823 (June) 1928	25	16	9	36.0
Ramsdell, E. G.: Ann. Surg. **99**:1 141 (Jan.) 1934	50	33	17	34.0

The earliest reports on the reinfusion of blood obtained from the pleural cavity were based on the experiences of army surgeons in the late war. Elmendorf,[7] working as a battalion surgeon in the German army, reported its use in the treatment of a soldier who had a massive hemothorax resulting from a gunshot wound of the right side of the chest, which threatened to prove fatal. He aspirated 300 cc. of blood from the pleural cavity and reinfused it into a vein of the arm, with almost immediate improvement in the patient's condition and with ultimate recovery. Wederhake[8] reported similar results, stating that he had used autotransfusion successfully in several cases of hemothorax due to gunshot wounds of the lung without having observed any deleterious effects.

The only other cases that we have been able to find in the literature are those reported by Brown and Debenham,[9] the hemothorax being due to fractured ribs in one case, to a stab wound of the left side of the chest in another, and to a gunshot wound of the right side of the chest in a third. Autotransfusion was used in each of these, with recovery of the patient. Culture of the blood from the hemothorax in the stab wound case was sterile.

Fig. 2.—Appearance of the patient four months after discharge from the hospital.

6. Rhodes, R. L.: Suture of Stab Wound of the Heart, Ann. Surg. **81**:757-760 (April) 1925.

7. Elmendorf: Ueber Wiedereinfusion nach Punktion eines frischen Hämatothorax, München. med. Wchnschr. **64**:36-37 (Jan. 2) 1917.

8. Wederhake: Ueberpflanzung (Transfusion) von Blut, München. med. Wchnschr. **64**:1471-1473 (Nov. 6) 1917.

9. Brown, A. L., and Debenham, M. W.: Autotransfusion: Use of Blood from Hemothorax, J. A. M. A. **96**:1223-1225 (April 11) 1931.

Rhodes, reporting his results in the treatment of stab wounds of the heart, suggested aspiration of the blood from the pleural cavity for reinfusion. "If this were done at the beginning of the operation, or even while the patient was being prepared and anesthetized, the blood collected in a vessel containing sodium citrate to prevent further clotting, it would offer the possibility of reuse, either injected into a vein or directly into the cavity of the left ventricle and might therefore be a means of saving a few additional lives." In one instance he attempted to use the blood found in the pleural cavity during operation, but it contained many clots, and before it could be filtered for reinjection the patient died.

That it is a valuable procedure worthy of trial is shown by the following report, in which we feel that it meant the difference between success and failure of the operation:

REPORT OF CASE

C. C., a white youth, aged 16, admitted to the emergency room of the Presbyterian Hospital, Nov. 17, 1934, had been stabbed in the left side of the chest about forty-five minutes previously. He had been working in his father's butcher shop when he became involved in an argument with another boy over a small sum of money. His antagonist picked up a short butcher knife, pressed it against his chest and asked him how he would like to be stabbed. He felt the point of the blade but had no knowledge of any injury until after he had walked about ten paces to another counter to get some meat, when he suddenly felt faint and collapsed. He was brought to the hospital, where he was found to be unconscious and in an extreme state of shock. He was bleeding rather profusely from a 1 cm. wound in the third left intercostal space about 5 cm. to the left of the midsternal line. The wound edges were gaping and there was a loud sucking sound on each inspiration, with a soft interrupted blowing sound on expiration. The apex impulse of the heart could be felt in the fifth left intercostal space, just medial to the midclavicular line, but was very weak and irregular. On auscultation the heart sounds were distant and muffled. The rate was estimated at between 145 and 160 beats per minute. There was no perceptible radial pulse. The respiratory rate was 50. The respirations were shallow and produced little excursion on the left side. Anteriorly the lower left portion of the chest was markedly hyperresonant to percussion, while posteriorly it was flat. Breath sounds were absent over the entire left side of the chest except at the apex, where they were practically normal. A diagnosis was made of stab wound of the left side of the chest, probable stab wound of the heart, left hemopneumothorax, and shock.

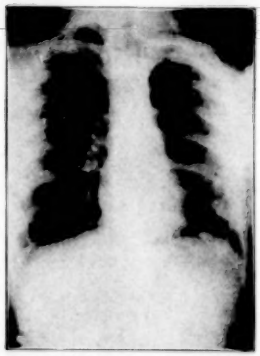

Fig. 3.—Roentgen appearance of the chest four months after discharge from the hospital.

The patient was treated for shock and was taken to the operating room as soon as it could be made ready. Under local anesthesia an incision was made along the left margin of the sternum and then extended laterally at its ends between the second and third and the fourth and fifth ribs. The costal cartilages were divided, the parietal pleura was incised, and the flap was retracted laterally. There was so much blood in the pleural cavity that it was impossible to determine the source of bleeding. With the idea of saving some of the blood for reinfusion, an attempt was made to empty the pleural cavity with a large syringe, but it filled up as rapidly as the blood was removed, so this was soon abandoned in favor of large dry packs, which were plunged into the cavity and were then wrung out into a beaker containing 50 cc. of a 2 per cent solution of sodium citrate. Seven hundred cubic centimeters of blood was recovered in this manner. A wound was now apparent, which extended through the pericardium and crossed the upper end of the anterior longitudinal sulcus of the heart, having divided the anterior descending branches of the left coronary vessels without extending into the ventricle. The edges of the pericardium were grasped with Allis forceps, and a tanned chromic suture on an atraumatic needle was passed through the upper angle of the pericardial wound into the heart. From above down five sutures in all were inserted, bleeding evidently being controlled by the first two. Another opening was then made in the pericardium and the surface of the heart explored for evidence of further injury. This was left open to avoid the development of a pericardial effusion. A large amount of blood, fully as much as had been removed, was left in the pleural cavity. The costal cartilages were approximated and the incision was closed in layers without drainage.

While the operation was progressing an intravenous set was made ready, and the recovered blood was filtered through several layers of gauze and reinjected into one of the veins of the arm. The patient had received only 200 cc. of blood when he began to regain consciousness. A donor had been obtained by the time the operation had been completed, but the patient's condition was considered sufficiently satisfactory not to necessitate the use of any more blood. A Kahn test of the donor's blood was subsequently reported to be positive for syphilis.

The patient was returned to his room and placed in an oxygen tent, where he was kept for three days, with gradual improvement in his condition and with a steady decline of the temperature, pulse and respirations toward normal. The blood pressure remained constant at 130 systolic and 80 diastolic. Examination of the blood showed 3,200,000 red blood cells and 73 per cent hemoglobin (Sahli). After removal of the oxygen tent his condition remained unchanged, except for a daily elevation of temperature and evidence on physical examination of an increasing amount of fluid in the left pleural cavity. Aspiration of the chest on the seventh day yielded 900 cc. of a sterile serosanguineous fluid, and similar amounts were removed every other day until the eleventh day, when the upper angle of the wound broke down, resulting in an open hydropneumothorax. This was followed by the development of an empyema showing Staphylococcus aureus, which was controlled fairly well by postural drainage until the twenty-second day, when the incision was finally healed. Aspirations of the chest were again resorted to, with the removal of about 500 cc. of pus every third or fourth day. A transfusion of 300 cc. of citrated blood was given as supportive treatment. Repeated roentgen examinations of the chest eventually revealed a walling off of the empyema cavity, limiting it to the upper half of the left side of the chest, and this was drained by means of a rib resection on the sixtieth day. Following this his convalescence was entirely uneventful, and he was discharged from the hospital eighty-three days after admission. Examination at this time was negative, except for some diminution in the anteroposterior diameter of the left side of the chest with evidence of thickened pleura. An electrocardiogram was reported as showing signs characteristic of early coronary involvement.

Four months later he returned for examination, stating that he felt fine and was working again. The chest was essentially unchanged except for some improvement in the deformity, and a roentgenogram showed thickened pleura but normal heart and lung shadows. An electrocardiogram was negative.

SUMMARY

Autotransfusion was used to combat the excessive loss of blood resulting from a stab wound of the heart.

As far as we can determine by a review of the literature, this is the first time autotransfusion has been used in the treatment of this type of injury. In view

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of its marked success in this instance, we believe that it should receive further trial as an adjunct to cardiorrhaphy in those cases in which the loss of blood is sufficient to threaten the immediate survival of the patient.

1515 Gulf Building.

PAIN IN THE SHOULDER GIRDLE, ARM AND PRECORDIUM DUE TO CERVICAL ARTHRITIS

SAMUEL S. HANFLIG, M.D.
BOSTON

This paper is concerned with the study and treatment of a group of cases in which, with the exception of one, the outstanding symptom was pain in the vicinity of the shoulder girdle and arm. In these cases, evidence of local disease of the arm and shoulder was absent and the pain was probably a manifestation of irritation or actual inflammation (radiculitis) of cervical spinal nerve roots due to cervical arthritis. In the one excepted case, precordial pain was the outstanding feature and was similarly due to a radiculitis or irritation of nerve roots due to cervical arthritis. It is believed that cases of this type are more frequent than is generally supposed. Their prompt recognition has led in most instances to complete therapeutic relief. The present paper is essentially a clinical one with emphasis on diagnosis and treatment, some reference being made to the pathologic process and its correlation with the clinical features. The method of treatment outlined, that of stretching and manipulation with a proper apparatus, has been of value in doubtful cases as a diagnostic test.

PATHOLOGY

The intervertebral foramina, through which spinal nerve roots emerge, are completely surrounded by bony structures. Surrounding the nerve root within the foramen are cellular tissues, lymphatics, arteries and veins. Consequently a congestive process, a periostitis and inflammation or an osteophyte within this bony passage may cause root symptoms.

Because of the dearth of autopsy material in cases such as these presented here, Nathan [1] induced nonsuppurative arthritis in animals and searched for evidences of spinal involvement. In six cases he found spinal arthritis, and the pathologic changes he observed were as follows:

1. Epidural exudate infiltrating the epidural areolar spaces.
2. Involvement of costovertebral joints with thickening of connective tissue in the neighborhood.
3. Thickening of the periosteum of the vertebrae.

He concluded that the vertebral changes in acute spondylitis (assuming that the pathologic changes are analogous to those found experimentally in the dog) consist of endothelial and subperiosteal inflammation leading to epidural and perispinal exudation, with resulting root irritation and compression.

CLINICAL AND PATHOLOGIC CORRELATION

The clinical features of arthritis of the cervical spine are these: Rigidity is present and its extent varies with the degree of muscular spasm, the extent of ligamentous ossification and the presence of osteophytes or hypertrophic changes. In the acute or infectious variety the rigidity is due to muscular spasm. In more advanced cases, ligamentous ossification is the cause. In far advanced cases, the osteo-arthritic or hypertrophic variety, the rigidity is due to osteophytes growing at the margins of the vertebral bodies and on spinous and transverse processes.

Another clinical feature is pain. It may be local pain due to the strain to which the inflamed parts are subjected while the spine is called on to maintain correct erect posture without support. On the other hand, the pain may be referred along the sensory nerves of the limbs or trunk. This pain may be due to pressure on the posterior nerve roots as they emerge from the spinal cord through their bony outlet. This pressure may be due to one or more causes. In the infectious variety the roots as they emerge may be involved by adhesions or pressed on by inflamed ligaments and capsules. In the hypertrophic variety, reference of pain may be due to the pressure of osteophytes with their associated soft tissue inflammation and synovial thickening.

Symptoms may vary, depending on the degree of mechanical interference with the roots as they emerge from the cord. If the interference is slight there may be paresthesias and numbness as the only symptoms. Pain of a more severe sort along any of the sensory or segmental nerves is the inevitable sequence of a more definite impingement. The distribution of pain and sensory disturbances varies with the particular nerve root or roots involved. The mechanism of reference of pain to the precordial areas as a result of irritation of cervical roots has been suggested by Nachlas.[2] The medial anterior thoracic nerves originate in the eighth cervical and first thoracic spinal segments. The lateral anterior thoracic nerve originates in the sixth and seventh cervical segments. These innervate the pectoralis major and pectoralis minor muscles. These are motor nerves and do not carry any skin sensory fibers. These nerves, however, can possess protopathic sensations so that an irritation of them may produce a diffuse yet definite pain referred to the terminal portion of the nerve. There may even be muscle incoordination, loss of position sense, or even absence of reflexes and paralyses of the flaccid variety if the anterior roots of the spinal nerves are sufficiently involved.

FREQUENCY

The syndrome of cervical arthritis, more often the hypertrophic variety, associated with referred pain to the shoulder and arm, and more rarely to the precordium in a pseudo-angina fashion, is common. In the past three years approximately thirty cases have come to my attention. In these the diagnosis was made and confirmed and treatment was successfully instituted.

CASE HISTORIES

Of this series, five cases are presented in all of which pain in the shoulder and arm due to cervical arthritis was present. A sixth case will be mentioned briefly as a case of anginal-like pain, believed to be due to cervical arthritis. In none of these cases was there any evidence clinically and by roentgen examination of pathologic changes in the shoulder joint. In all these cases, either clinically or by roentgen examination a diagnosis of arthritis of the cervical spine was made. All were

From the orthopedic service of the Beth Israel Hospital, Boston, and the orthopedic service of the Cambridge Hospital, Cambridge, Mass.

1. Nathan, W. P.: The Neurological Condition Associated with Polyarthritis and Spondylitis, Am. J. M. Sc. **152**:667 (Nov.) 1916.

2. Nachlas, I. W.: Pseudo-Angina Pectoris Originating in the Cervical Spine, J. A. M. A. **103**:323 (Aug. 4) 1934.

relieved by the treatment suggested by the cases herein presented, with the aid of the apparatus shown in figures 2 and 3.

Case 1.—E. S., a man, aged 43, a merchant, complained of a constant "agonizing pain" along the posterior aspect of the right shoulder, which had been present for about six weeks. This pain radiated up along the right lateral aspect of the neck and down into the fourth and fifth fingers. It had been sufficiently severe to interfere with his sleep. He had noticed for even a longer time numbness of the right hand and weakness of the right grip. A diagnosis of subdeltoid bursitis was made by his family physician, and baking and massage and salicylates were prescribed without relief.

Fig. 1.—Hypertrophic arthritis of cervical spine.

Examination of the right shoulder joint was negative. The cervical spine showed limitation of motion to a slight degree in all directions, particularly in rotation. When an attempt was made to stretch the neck in rotation to the right beyond the limit he was actively capable of, the pain in his shoulder was acutely accentuated. Examination also revealed marked atrophy of the extensor muscles of the right upper arm and weakness of the right wrist extensors. The reflexes of the right arm were diminished. The right hand grip as compared to the left was definitely impaired. Roentgen examination revealed marked spurring, involving the anterior and lateral borders of the fourth, fifth, sixth and seventh cervical vertebrae with practically complete bridging of the spaces between the fifth and sixth vertebrae. A roentgenogram of the right shoulder was negative (fig. 1).

He was admitted to the Beth Israel Hospital, and the morning after admission treatment was begun as follows: One-half hour before the patient was taken to the stretching and suspension apparatus, 3 grains (0.2 Gm.) of sodium amytal was given. He was seated in a chair under the Sayre head traction apparatus and traction was applied in a manner suggested in figures 2 and 3. Traction was continued until the buttocks swung freely just above the seat of the chair. While suspended in this position, the patient indicated the desire to be lowered by snapping his fingers, since the apparatus made it impossible for him to speak. When the apparatus was released he stated that, while he was suspended, the pain which had been present constantly for six weeks disappeared completely. He also volunteered the information that as he was lowered and as traction was discontinued the pain returned. Treatment was carried out again for several short periods of one or two minutes and during these suspensions, with a nurse steadying the shoulders, the head was passively rotated to the left and to the right just beyond the limits of active rotation. A Thomas collar was made and applied, and he was returned to his room, where hot fomentations were applied to the neck.

This procedure was carried out three times on the first day. It was not necessary to repeat the use of amytal. It was performed twice on the second day, and on the third day he was discharged from the hospital with instructions to remove his collar for short periods of hot fomentations, to be followed by active neck exercises in flexion, extension and rotation. He was stretched occasionally at home and at the end of eleven days the only pain persisting was a very slight one over the back of the right shoulder. At this visit there was slight numbness of the little finger. A month later all the pain had disappeared and the right grip as well as the extensors of the right elbow and wrists had improved. Three months after treatment was begun he was completely well and has continued so to date, two years later.

Case 2.—W. H., a business man, aged 45, complained of severe pain of three weeks' duration along the right side of the neck. The onset was gradual and there was no injury associated with it. The pain radiated to the superior aspect of the right shoulder and into the lateral aspect of the right upper arm. Questioning revealed similar attacks of moderate intensity extending back over a period of several years. The most recent attack had been unrelieved by bakings to the shoulder administered by a physician who made the diagnosis of bursitis of the shoulder.

Examination of the right shoulder showed no evidence of any active disease. The neck, however, showed limitation of motion to a slight degree in all directions. Pain in the shoulder was accentuated by forcing forward flexion beyond the range he was actively capable of. Roentgen examination of the cervical spine showed slight hypertrophic changes.

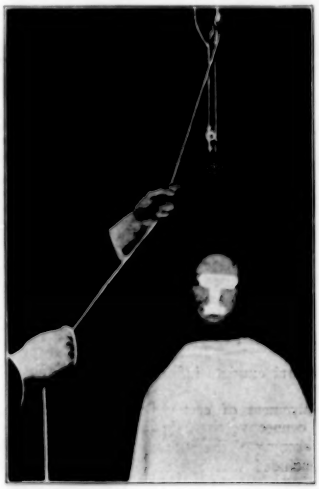

Fig. 2.—Suspension of patient with overhead block and tackle and Sayres head sling.

The same treatment as in case 1 was carried out at the Beth Israel Hospital. Here again in the suspended position the pain disappeared, only to reappear when the patient was lowered. After two weeks of treatment he was completely well.

Case 3.—J. S., a man, aged 55, a druggist, the brother of patient 1, complained of acute pain along the lateral aspect of the right side of the neck, radiating into the right upper arm. It had been present more than a week and was constant and "unendurable."

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Examination of the shoulder joint was negative, as was also a roentgen examination. Motions of the neck were markedly limited in all directions. Forced extension beyond his active extension accentuated his pain. Roentgen examination of the cervical spine showed extensive hypertrophic changes so identical with the changes revealed in his brother's roentgenogram, even to the bridging of the spurs, that the two could be interchanged and confused readily.

He was admitted to the Beth Israel Hospital and treatment was instituted. Within three weeks the pain was entirely gone. Six months later he had a mild recurrence of this pain, which responded effectively and promptly to exercises and hot applications.

CASE 4.—M. D., a man, aged 60, complained of pain along the dorsum of the cervical spine and over the back of the left shoulder. This pain had been constant for nine weeks, during which time several physicians had treated him without success. His teeth were extracted without relief. Following this he was advised to have his tonsils removed, but the consultant to whom he was referred for this procedure did not consider it necessary and suggested an orthopedic consultation.

Examination of the left shoulder was negative. The neck showed limitation of motion in all directions with pain referred on forced rotation to the left to the posterior aspect of the left shoulder. Roentgen examination of the cervical spine showed extensive lipping and hypertrophic changes, with a good deal of bridging of spurs.

He was admitted to the Beth Israel Hospital for treatment. In ten days he was free from pain. He was advised to continue with exercises at home. He was stretched once a month for three months. He has been well to date, one year after treatment ceased.

CASE 5.—L. L., a furniture dealer, aged 55, complained of pain in the right shoulder of one week's duration. It was rootlike and lancinating, unrelated to any initial trauma or to motions of the shoulder joint. Two months before the onset of pain he had consulted a cardiologist for precordial distress, present on repeated occasions with exertion. For this condition he was advised to diminish his activities. Small doses of glyceryl trinitrate were prescribed for this distress.

Examination of the right shoulder joint was negative but for a rather severe second degree burn over the superior and anterior aspect of the shoulder joint, the result of a too vigorous attempt to allay the pain with hot fomentations. Roentgen examination of the neck revealed no evidence of hypertrophic arthritis of the cervical spine. Objectively, however, the neck showed slight limitation of motion in all directions, and forcing his neck in lateral flexion to the left accentuated the pain.

He was admitted to the Beth Israel Hospital and before treatment was instituted he was thoroughly examined by an internist, who shared my opinion that the present pain was in no way related to angina pectoris and questioned the existence of coronary disease. Treatment was carried out and in four days the patient was discharged with marked improvement. Three weeks afterward the pain had subsided and only numbness over the superior aspect of the right shoulder remained. This lasted for about a month. He has had no precordial distress since the treatment. Whether or not this is due to his care not to overexert or whether the anginal pains were possibly due to the cervical arthritis, as recently described by Nachlas, cannot as yet be definitely established.

Case 6 is being presented briefly, as it is to be reported more fully elsewhere by others primarily interested in cardiology.

CASE 6.—H. T., a man, aged 50, presented himself at the outpatient department of the Beth Israel Hospital in December 1933 complaining of pain, beginning to the left of the sternum, radiating into the lateral left side of the neck and down his left arm. It was associated with a constant pain and tightness of the back of the neck. He had been seen previously and elsewhere by a cardiologist who made a diagnosis of angina pectoris, prescribed glyceryl trinitrate and shortly thereafter suggested a total thyroidectomy for the relief of the pain. The patient refused to undergo this operation. He was studied at the various clinics of the Beth Israel outpatient department. The repeated heart examinations, both clinical and laboratory, were negative. The positive observations were as follows: hypertrophic arthritis of the cervical spine and left shoulder, generalized arteriosclerosis, and a moderately increased total protein in the spinal fluid on two occasions. This increased total protein was the only positive neurologic manifestation. A diagnosis of radiculitis with associated precordial pain, as suggested by Nachlas, was considered by the neurologic service. The possibility of a cord tumor was also considered.

I suggested that treatment as outlined in this paper might be used as a therapeutic test. Two days after it was begun the precordial pain disappeared, along with a good deal of the neck pain. A few days later the precordial pain recurred but was considerably diminished. It was immediately controlled by additional treatment, and two or three days thereafter the pain had entirely gone. The patient has discontinued all medication and is most anxious to receive additional stretchings. His only complaint at present is pain in the left arm and shoulder, which is believed to be due to a grossly objective arthritic left shoulder. He has been followed now for seven weeks to date (Oct. 15, 1934) without any recurrence of the precordial pain.

Fig. 3.—Rotation of patient's head while suspended with shoulders held fixed.

DIAGNOSIS

The diagnosis is suggested by the presence of pain, rootlike in character, in the shoulder, arm or precordium, unassociated with sufficient evidence of local disease in the shoulder to account for it satisfactorily. Sensory disturbances and even definite flaccid paralyses with loss of reflexes may be present. There is usually some pain either along the side of the neck or back of the neck, which either may be the starting point for the pain in the arm, shoulder or chest or may exist independently. Examination of the neck usually reveals limitation of motion, to a less or greater degree, in one of its arcs. Passively stretching the neck in all directions beyond the range of which the patient is actually capable will usually disclose the direction in which the pain is accentuated. The roentgenogram may or may not show evidences of hypertrophic arthritis, depending on the extent, duration and type of disease. The condition must be differentiated from (1) cervical rib, (2) subacromial bursitis, (3) arthritis of the shoulder, (4) toxic and infectious neuritis, (5) muscle sprain, and (6) lesions of the spinal cord.

TREATMENT

The treatment of this disorder, although essentially constant, may vary in its sequence and duration with the activity and acuteness of the arthritic changes. If the arthritis responsible for the pain is of the acute variety, it is desirable to splint the neck either with a Thomas collar or with constant head traction using a Sayres sling.

If the arthritis is subacute or chronic, and this is the usual type, stretching and manipulations are indicated in the manner hereafter described. An overhead hook into which can be attached a block and tackle Sayres

sling suspension apparatus is needed. The patient is seated on a chair under the apparatus. If the patient is apprehensive, it may have been advisable to prescribe a sedative. The Sayres sling, well padded at the chin piece and occiput piece, is applied. Traction is applied as in figure 2 and is continued until the patient's buttocks swing freely, when rocked, just above the seat of the chair. While the patient is suspended in the air, the shoulders are held by an assistant, and the head and Sayres sling are rotated (fig. 3) to the left and right, forcibly. This procedure is repeated several times. The patient is then lowered and rested for a moment or two, and then the entire procedure is carried out again.

A Thomas collar is made and applied, to be removed only for the hot fomentations to the neck that follow each treatment.

It has been customary to carry out this treatment three times the first two days, twice a day thereafter and then spaced out as seems advisable. The number of treatments varies tremendously and is determined by the progress of the disorder. Similarly the period of wearing the Thomas collar varies. In certain cases it may be dispensed with.

As soon as the pain begins to go, active graded exercises in rotation, flexion and extension are advised. The patient is advised to return at stated long intervals for inspection, at which time occasional neck stretchings and manipulations are advised if any recurrence of pain or increase in limitation of motion is observed.

This treatment can be used as a diagnostic test, because in most cases in two or three days there is beginning relief of pain. It is effective as a treatment, probably because it mobilizes adhesions, breaks up bridging of fine calcifications, and relieves muscle spasm, thereby contributing to a better carriage of the cervical spine.

COMMENT

The occurrence of an increased total protein in the spinal fluid in case 6 suggests the possibility of such a finding in radiculitis of this type, consistent with the observation that the cerebral spinal fluid circulates around the nerve roots as they lie in the intervertebral foramina. It is not unreasonable to assume that the cerebral spinal fluid may be modified by the radiculitis, as the result of pressure and the associated congestive and inflammatory changes of spondylitis of the spine. Lumbar puncture will be done in additional cases when possible, with a view to establishing or disproving this premise.

I have used this treatment as a therapeutic test in several instances to differentiate between this condition and others in which the objective signs were confusing. Its possibility as a therapeutic test in the differentiation of pseudo-angina due to cervical arthritis and true angina has been suggested.

These cases are frequent and they represent in all probability a substantial proportion of the patients who migrate to chiropractors and others after they have been baked at length for arthritis of the shoulder or bursitis of the shoulder. Some of the commonly called neuritis in elderly people is probably on this basis.

The recognition of these borderline cases which lie between the confines of neurology and orthopedic surgery is most important if one is to prevent a substantial migration of patients to the cults beyond the realm of medicine.

371 Commonwealth Avenue.

PERSISTENT URACHUS IN THE ADULT

CLIFFORD LEE WILMOTH, M.D.
STATEN ISLAND, N. Y.

Umbilical fistulas derived from remnants of the urachus are rare, particularly in adults. Four cases of pathologic conditions originating in the urachus, seen at the U. S. Marine Hospital, Staten Island, during the past five years are reported. One was a malignant growth, the other three cases were chronic fistulas.

At birth the urachus reaches to the umbilicus. Normally, after birth the bladder descends, taking the urachus with it, leaving only a fibrous tissue cord. In the normal adult the urachus measures from 3 to 10 cm. in length and reaches only one third the distance from the apex of the bladder to the umbilicus, being attached at the umbilicus only by fibrous cords from the obliterated umbilical arteries.

In a small percentage of cases, however, such descent of the urachus does not occur, and there remains a more or less obliterated epithelial structure reaching from the umbilicus to the bladder. That this is a rare condition is evidenced by the report that of 15,000 cases admitted to the Brady Urological Institute only three were found to present this condition. Of 5,840 cases seen at this hospital during the past five years, three have presented this condition and were diagnosed not by cystoscopic examination but by examination of an umbilical fistula and the diagnosis was confirmed by

Fig. 1.—Drawings of the four cases. *U*, umbilicus; *B*, bladder; *F*, fistula or cyst of urachus; *D*, obliterated lumen of urachus.

operation. The fourth case was diagnosed by an exploratory operation for a tumor extending from the umbilicus to the pubis, which was found to be a malignant growth with metastases extending down over the bladder and invading the adherent omentum.

The normal urachus is attached to the apex of the bladder. It may communicate with the bladder or it may reach only to the bladder mucosa. The urachus is separated from the peritoneal cavity only by the parietal peritoneum. The lumen of the normal urachal canal is approximately 1 mm. in diameter and is lined by epithelial cells. While the canal presents an unbroken continuity of epithelial cells, the lumen may be obstructed by its own desquamated epithelium. The obstruction offered by the proliferated and shed epithelial cells and débris accounts for the rarity with which urine is found to pass upward from the bladder. Surrounding the epithelial lining of the normal urachus is a dense, connective tissue layer. The epithelial cells tend to proliferate outward into this connective tissue support.

On those rare occasions in which the urachus does not descend with the bladder a lumen may be intact, reaching from the bladder to the umbilicus and discharging urine at the umbilicus. In other cases the

From the Surgical Service, U. S. Marine Hospital, United States Public Health Service.

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lumen may be patent only to the midportion with no drainage present, unless as the result of injury or secondary infection; the contents of the infected cyst find their way upward to be discharged at the umbilicus, or downward into the bladder, with a resulting secondary cystitis. In other cases the lumen appears to open at the umbilicus and to extend downward, for a distance of from 5 to 10 cm., apparently ending blindly.

In none of the cases reported here was there a lumen connecting with the bladder. In case 1 the inflammatory swelling extended to the mucosa of the bladder but not into it. In case 2 the lumen was present, extending from the umbilicus downward 5 cm., ending blindly, while 2 cm. below there was a cyst filled with a straw-colored transparent fluid, 3 cm. in diameter. From this cyst a cord extended downward to the apex of the bladder. In case 3 the fistula extended from the umbilicus downward approximately 5 cm., ending blindly. In case 4, in which the malignant growth was present, the tumor mass extended from the umbilicus and involved the bladder. It was difficult to determine the extent of the urachus as the tumor had extended downward along the wall of the bladder, although it had not penetrated the mucosa.

Infection in a persistent undescended urachus makes its presence more evident. The history in these three benign cases is similar. The chief complaint was an intermittent discharge from the umbilicus. There was a slight more or less constant secretion present, which periodically became purulent and was associated at such times by slight pain and redness about the umbilicus. When the infection subsided the discharge again became a thin, watery secretion which kept the umbilicus damp, but only occasionally was it sufficient in amount to soil the clothes. One patient complained

Fig. 2 (case 2).—Tract leading to umbilicus from persistent urachus.

of a foul odor, which was quite noticeable. The odor was similar to that experienced in cutting into certain sebaceous cysts. The symptoms and course were almost identical with those of the common pilonidal cysts. In pilonidal cyst the epithelium has remained buried and symptomless as a rule until adult age. For some reason, owing to increase in the secretion, or as a result of secondary infection, the patient is conscious of a tender, swollen area or a draining sinus. This periodically drains a purulent material as secondary infection flares up. Such is also the history and course of symptom-producing urachal remnants.

The treatment is excision of the infected tract and remnants of the urachus. If there is an opening at the

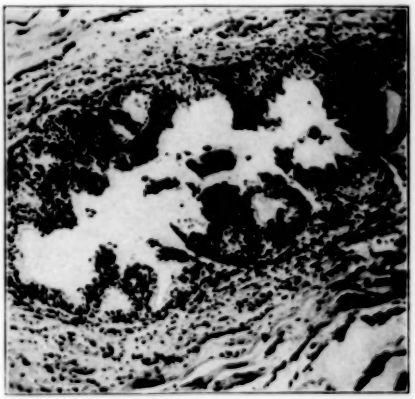

Fig. 3 (case 2).—Persistent urachus. The structure is lined by stratified transitional epithelium similar to that of the urinary bladder. It is surrounded by fibrous tissue.

umbilicus, the sinus may be injected with methylene blue, which may aid in removing the entire epithelial structure. The sinus, if present, is then closed by suture and gauze packing to prevent soiling of the abdominal wound. An incision is then made about the umbilicus, extending downward near the midline toward the pubis.

The peritoneum may be found adherent owing to the infection, and in two of the cases the omentum had plastered over the region from the umbilicus downward along the infected tract. The presence of the adherent omentum makes the possibility of a Meckel's diverticulum more difficult to rule out, so one must proceed with caution. Theoretically, a simple extraperitoneal excision of the sinus tract is possible. Practically, such a tract is densely adherent to the peritoneum, and the peritoneum must be removed with it for the extension of the cyst. Even with care it is difficult to remain outside the infected area, as it is necessary to preserve as much peritoneum as possible if satisfactory closure is to be made. By opening the peritoneal cavity contamination may occur, and difficulty is often experienced in closing the peritoneum without undue tension. In one case closure was made with difficulty, and then only by sutures that included the entire abdominal wall, except the skin. As in pilonidal cysts, incision into the infected cyst does not produce a cure but may be a necessary preliminary operation to establish drainage until the acute infection subsides to a minimum. After the acute infection has ceased, a safer excision of the entire tract may be accomplished. In these cases there was no evidence of urinary obstruction, nor a history of urinary infection. Nevertheless, the entire urachus was removed and the protruding apex of the bladder closed with interrupted sutures.

REPORT OF CASES

CASE 1.—A youth, aged 19, admitted to the hospital, Sept. 24, 1933, complained of pain about the umbilicus and a discharge from the umbilicus. The condition was first noticed six weeks before. The first symptom noted was a small amount of pain about the umbilicus, which three days later began to drain. At times the patient noticed considerable local pain extending

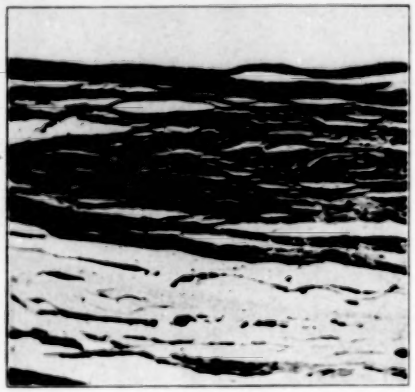

Fig. 4 (case 2).—Wall of cyst along the course of the urachus. The cyst is lined with simple low cuboidal epithelium and has a wall of hyaline lamellar connective tissue.

from the umbilicus downward and that there was swelling in that area. He had had no urinary symptoms. The urine was apparently normal on admission.

The temperature and pulse were normal and physical examination showed little of importance, except the draining sinus from the umbilicus and a tender area along the midline extending downward toward the pubis. The sinus was injected with methylene blue. An incision was made about the umbilicus and extending downward at the midline toward the pubis.

A persistent urachus measuring 2 cm. by 4 cm. by 8 cm. was found. It was slightly pear shaped, with the smaller end toward the bladder. The tumor was attached to the fundus of the bladder but did not penetrate the mucosa. The peritoneum was firmly adherent to the tumor mass and was removed with it. The omentum was adherent along the course of the urachus. The urachus was removed and the opening in the fundus of the bladder closed. The abdominal wall was closed with difficulty, owing to loss of peritoneum.

Sections[1] showed a small tubular structure 6 mm. in diameter, lined by columnar epithelium. A thin circular layer of smooth muscle was present about the epithelium. Outside this layer was loosely bound muscle and fibrous tissue. There were multiple sinus tracts lined by granulation tissue extending outward from the epithelial-lined urachus.

There was moderate drainage with elevation of temperature for nine days following operation. Recovery after that time was uneventful.

CASE 2.—A man, aged 27, was admitted to the hospital, Dec. 2, 1934, for excision of a persistent urachus. At the time of admission he stated that he had noticed a discharge from the umbilicus for the past month. The drainage at times had a noticeably foul odor. The discharge was thin and slightly yellowish. The amount, he thought, was gradually increasing.

Examination showed slight redness about the umbilicus. There was a small amount of foul smelling watery secretion from a sinus, which extended downward a distance of 1½ inches in the midline of the abdominal wall. The odor of the discharge resembled that noted in an occasional dermoid cyst. The temperature and pulse on admission were normal. There were no urinary symptoms. The urine was normal.

The sinus was injected with methylene blue. An incision was made encircling the umbilicus and extending downward toward the pubis near the midline. The persistent urachus was removed. It was necessary to remove a small area of peritoneum adjoining the umbilicus. For the remainder of the excision the peritoneum was not incised.

Examination showed a tract lined with atrophied transitional epithelium similar to that of the urinary bladder. This epithelial tract was surrounded by fibrous tissue. The cyst was lined by cubicle epithelium with an outer wall of hyaline connective tissue. The microscopic diagnosis was urachal cyst with persistent urachus. Postoperatively there was an elevation of temperature for seven days, with moderate drainage from the wound. Recovery was otherwise uneventful.

CASE 3.—A man, aged 38, examined Jan. 24, 1935, stated that about two years previously he had first noticed a slight watery discharge from the umbilicus. The discharge had persisted most of the time during the past two years. At intervals there was redness about the umbilicus and the discharge became thicker. Usually the amount of secretion was just sufficient to keep the umbilicus damp and seldom soiled his clothes except at those intervals when the discharge became more purulent and it was necessary to wear a dressing over the umbilicus to prevent soiling.

Examination showed a rather deeply placed umbilicus and at the inferior margin there was a small sinus. A probe was passed without difficulty, directly downward in the midline for a distance of 4 cm. There was a thin, watery discharge from the sinus.

Operation was advised, but the patient stated that he had recently obtained a new position and felt that he could not ask for leave to be operated on at that time.

CASE 4.—A man, aged 31, admitted to the hospital Aug. 28, 1930, complained chiefly of pain and difficulty in urination, which had been noticed for a period of one month.

Fig. 5 (case 4).—Myxosarcoma arising in a persistent urachus. Sections show a new growth composed of large cells with vesicular nuclei and small nucleoli; where close packed these cells show broad faintly staining cytoplasm and polygonal outline and numerous fine mucin, and collagen fibrils run around and between the cells. Where the arrangement is loose the cells assume a stellate form and copious intracellular mucin. Mitotic figures are numerous.

Examination was essentially negative except for the abdomen. There was a palpable tumor mass extending from the umbilicus downward to the pubis. Cystoscopic examination showed compression of the fundus of the bladder, apparently from an extravesical mass. The bladder mucosa appeared normal. The leukocyte count was 8,600. The urine was normal.

1. Microscopic sections furnished by the National Institute of Health, Washington, D. C. Photomicrographs made at the Venereal Disease Research Laboratory, U. S. Marine Hospital, Stapleton, S. I.

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An exploratory incision was made. A tumor mass was found invading the abdominal wall and extending into the rectus abdominis muscles, laterally, from the umbilicus downward toward the pubis and then extending over the superior surface of the bladder into the pelvis. The adherent omentum was filled with tumor masses. There were metastatic growths scattered over the adjacent parietal peritoneum.

The tumor was inoperable. Microscopic sections showed the tumor to be a myxosarcoma. Roentgen therapy gave no apparent results.

The patient died from generalized sarcomatosis five months later.

SUMMARY

Of four cases of persistent, undescended urachus in adults, one was malignant. The three nonmalignant ones opened at the umbilicus.

While the normal urachus should descend with the bladder after birth, some do not descend and the secretion from the epithelial lining or secondary infection of the epithelial structure causes sufficient pressure to produce an opening at the umbilicus with resulting chronic fistula.

The age of the patient when first noted, the onset of symptoms, the progress of the condition and the treatment are nearly identical with the common pilonidal cyst, differing only in its embryologic structure and its different location.

Surgical removal of the sinus and epithelial structure in its entirety with the umbilicus and inversion of the bladder end is a proper method of treatment. Malignancy does occur in the persistent urachus.

FATAL HEMOGLOBINURIA WITH UREMIA FROM QUININE IN EARLY PREGNANCY

K. L. TERPLAN, M.D.
AND
C. T. JAVERT, M.D.
BUFFALO

As it is not generally known to the physician that quinine, when employed in early pregnancy, may produce hemoglobinemia with severe kidney damage, we report a case of fatal quinine poisoning in a woman in the early stage of pregnancy, with hemoglobinuria and uremia. The case also stresses the importance of a thorough pathologic and toxicologic examination in any instance in which the clinical observations are not fully explained by the laboratory data. The urea nitrogen retention in the blood of this patient was the highest ever recorded in our laboratories. This, together with increasing oliguria, focused the clinical attention on the kidneys. Since mercury poisoning was ruled out by the analysis of the urine and a history of drug ingestion could not be obtained before the death of the patient, it remained for the postmortem examination to determine the nature and etiology of the anticipated severe renal damage. Here the picture of so-called hemoglobinuric infarction of the kidney tubules suggested itself. Search of the foreign literature showed in rare instances that quinine was found as the only ascertainable cause of fatal hemoglobinuria. This case is, to our knowledge, the first in which part of the drug taken could be recovered by chemical analysis of the liver. It is apparently the first report in the American literature of fatal hemoglobinuric kidney damage due to quinine.

From the Pathology Laboratory of the Buffalo General Hospital, and the Department of Pathology, University of Buffalo School of Medicine.

History.—A woman, aged 41, of Polish descent, admitted Sept. 12, 1934, in the service of Drs. Greene and Bowen, had had three previous normal pregnancies. Her chief complaints were persistent emesis, anorexia, extreme prostration and vaginal bleeding, supposedly of several weeks' duration. Further history was refused because of extenuating circumstances, and the following information was obtained from the immediate family after the death of the patient. A pregnancy of approximately three months' duration had been interrupted by a lay abortionist, who had given the patient the following drugs: Liquor Sedans (a proprietary remedy containing black haw, golden seal and Jamaica dogwood), twenty 5 grain (0.3 Gm.) tablets of quinine, six bile salt tablets and twenty-four black pills. The manner of ingestion and the dosage of the medications were not discovered, as the patient would give no information concerning these facts. For the same reason the exact date of the onset of symptoms could not be determined. Medical attention was not sought until the patient's condition became rather critical and the family quite alarmed, which was one day prior to hospitalization. However, several of the aforementioned black pills were obtained and analyzed.

Examination.—The patient was pale and obese, with a temperature of 98 F. (rectal), pulse 82, and respiration rate 20. The conjunctivae were anemic, there were brown crusts on the tongue, and colostrum was expressed from both breasts. There were no cardiac bruits demonstrable, the blood pressure was 110 systolic, 66 diastolic, and the abdomen was soft. Pelvic examination revealed the presence of slight vaginal bleeding, an open cervical canal and a slightly enlarged uterus. Pitting edema of the ankles was present, and also a maculopapular eruption on the back and the buttocks.

The urine was first reported to be clear, with a specific gravity of 1.015, a 2 plus albumin, and no sugar. The red cell count was 1,830,000 per cubic millimeter, with a hemoglobin of 36 per cent (Newcomer). The white cell count was 19,800, with 96 per cent of polymorphonuclear neutrophils. The Wassermann reaction was negative.

Chemical analysis of the blood revealed urea nitrogen 344, dextrose 262, chlorides 479, calcium 6.6, phosphorus 20.4, cholesterol 221, creatinine 16.2, and uric acid 20.9, all expressed in milligrams per hundred cubic centimeters. The blood serum contained 3.4 per cent of albumin and 1.7 per cent of globulin. The plasma carbon dioxide capacity was 15 volumes per cent. The van den Bergh reaction was 0.6 unit. Several urine samples were negative for mercury bichloride.

Treatment and Course.—Despite a daily injection of from 3,000 to 4,000 cc. of saline solution containing 5 per cent dextrose, distinct oliguria was present; only from 300 to 400 cc. of urine was excreted in twenty-four hours. A blood transfusion of 450 cc. was given. During the final days of life the urine became loaded with red blood cells. The patient became increasingly lethargic, comatose and dyspneic, vomited at intervals, and had a pulse of very poor quality. The temperature, even immediately prior to death, remained constantly subnormal (97 F., rectal), the pulse rate at its highest was 110, and the respiration rate 28. She died six days after admission.

Necropsy.—This was performed five hours after death. The pathologic diagnosis, with only the salient changes mentioned, was: Hemoglobinuric infarcts of both kidneys; diffuse glomerulonephritis(?). Distinct uremic gastritis and enterocolitis with strong ammoniacal odor. Edema of the liver, with slight brownish discoloration (hemosiderosis). Contracted bladder, containing very little bloody urine. Very distinct anemia of the entire integument with a marked peculiar grayish hue. Purpuric rash on the back and sacral region. Fluid, dark red blood in the heart and in all large veins. Distinct edema of all the mediastinal tissues; marked edema of the gallbladder. Petechial hemorrhages in the epicardium, the gastro-intestinal mucosa and brain. Necrotic placental remnants in the uterus without signs of an endometritis. Recent lobular pneumonia. Normal lipoid content in the adrenals.

Macroscopic Examination of Kidneys.—The kidneys were markedly enlarged, each measuring 14.6 by 7 by 4 cm. One weighed 260 Gm. and the other 255 Gm. The capsule was markedly distended but stripped easily. The surface of the cortex showed a peculiar discoloration. It was grayish brown with a black hue, somewhat resembling the color of chocolate. There were innumerable dark bluish black spots scattered over

the cortex. These were interspersed with grayish white areas, resulting in a mottled appearance. On section the pareachyma was very moist. The cortical substance appeared distinctly swollen, varying in width from 0.8 to 1.4 cm. There were innumerable bluish brown streaks especially prominent in the renal pyramids. The entire picture resembled that of so-termed hemoglobinuric infarcts (fig. 1).

Microscopic Examination of Kidneys.—The most conspicuous changes were hemoglobin masses forming fine granular detritus

Fig. 1.—Gross appearance of the kidney on surface and cross section.

in the lumen of many convoluted tubules, in the loops of Henle and in the distal convolutions. In addition, most of the collecting tubules contained huge, conglomerate, hemoglobin globules and many desquamated epithelial cells with preserved nuclei, which were completely imbibed with hemoglobin. There was marked distention of practically all the convoluted tubules and the loops of Henle. Some of Bowman's capsules also showed dilatation, although but little dissolved hemoglobin was detectable, together with desquamated epithelial cells and some leukocytes. However, the hemoglobin casts and masses that were so conspicuous in the convoluted and collecting tubules were not seen in Bowman's capsules. The epithelial damage in the proximal convoluted tubules was most severe. They exhibited necrobiotic changes and complete necrosis. In certain areas the epithelial lining appeared collapsed almost to a very thin membrane. Many nuclei were missing, and the cell membranes were not preserved. The brush border was hardly visible. The collecting tubules, however, were much less distended. It was obviously difficult, therefore, to identify the different portions of the tubular system because of the severe degenerative lesions and the extreme distention of the lumens.

In addition to the unusually marked hemoglobinuria with the degenerative lesions in the epithelial cells there were also rather marked inflammatory lesions, as evidenced by leukocytic and plasma-cellular infiltrates, not only around the collecting tubules overloaded with hemoglobin but also around several glomeruli and proximal convoluted tubules. This infiltration had, especially in the cortex, a more focal distribution. Finally, there were many leukocytes and necrotic cells intermingled with hemoglobin in the lumen of a fair number of loops of Henle and some of the collecting tubules. Only a few glomeruli appeared rich in cells, and their capillaries contained many leukocytes. Iron stain (Turnbull method) showed distinct hemosiderin granules in the epithelial cells of some convoluted tubules and loops of Henle, but only a few of these pigmented cells were visible within the hemoglobin casts in the collecting tubules. Otherwise, the iron reaction in the fine granular and globular hemoglobin masses and casts was entirely negative. It was of special interest to note that the erythrocytes within the capillaries of the glomeruli as well as in the stroma between the tubules and in the medulla were for the most part well outlined. Only occasionally were shadows of the erythrocytes seen, and some of them showed only a faint color, which suggested that the hemoglobin content was markedly reduced.

Other Microscopic Changes.—Smears of the urine sediment from the bladder showed huge hemoglobin masses and practically no preserved erythrocytes, together with a large number of leukocytes and epithelial cells. Spectroscopic examination suggested but did not conclusively prove the presence of methemoglobin.

Especially striking was the histologic picture of the liver, which showed a most selective hemosiderosis of the Kupffer cells. There was no iron pigment demonstrable in the liver cells.

The reticulum cells of the splenic pulp also showed distinct hemosiderosis.

Chemical Analysis.—Dr. Edward J. Powers, chemist in the Department of Health, Buffalo, made the analysis. Three grains (0.2 Gm.) of quinine was recovered from the liver. A report of the analysis of two of the "black pills" that were obtained from the family was as follows: apiol, none; savin oil, none; ergotin, none; ferrous carbonate, mass, and nux vomica, about one-fifth grain (0.01 Gm.).

COMMENT

The gross and histologic changes in the kidneys coupled with the ammoniacal odor of the gastrointestinal mucosa warrant a diagnosis of severe hemoglobinuric kidney damage with uremia. The clinical symptoms and laboratory results support this view. The recovery of 3 grains (0.2 Gm.) of quinine from the liver is significant, since there was no drug taken during the last week of life while the patient was in the hospital.

Quinine is a drug in common use. Small doses may produce swelling of the face and hands, rash, giddiness, and ringing in the ears. Following the ingestion of larger amounts, cinchonism may develop with nausea,

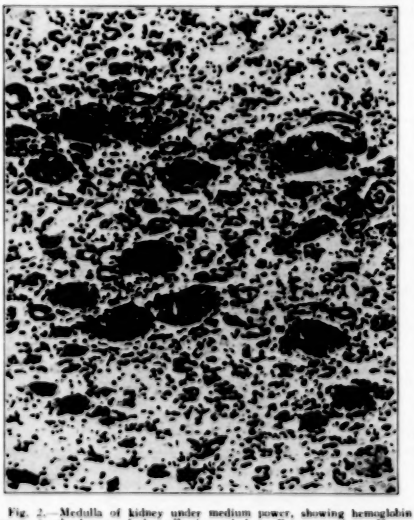

Fig. 2.—Medulla of kidney under medium power, showing hemoglobin masses in the lumen of the collecting tubules. Frozen section. Hematoxylin-eosin stain.

emesis, diarrhea, cardiorespiratory depression, prostration and collapse. Some of the latter symptoms were manifested in the case here described.

Hemoglobinuria following quinine medication is regarded by Bastedo[1] as of rare occurrence. This is

1. Bastedo, W. A.: Materia Medica, Pharmacology and Therapeutics, Philadelphia, W. B. Saunders Company, 1932, pp. 21 and 485.

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perhaps true of the ordinary case of cinchonism. Mezger and Jesser [2] do not record its presence in two fatalities observed in infants; nor does Raven,[3] who reports a death in a woman, aged 50, following an estimated dose of 200 grains (13 Gm.) of quinine taken as a soporific.

However, according to Else Petri,[4] who reviewed the literature on the toxicologic effect of quinine, hemoglobinemia and hemoglobinuria do occur, but only under certain physical-chemical conditions of the blood. This has been observed occasionally in patients suffering from "blackwater fever" [5] and in very rare instances in early pregnancy. The exact nature of the quinine hemolysis is not understood. Apparently a certain susceptibility to hemolysis must be present when quinine produces hemoglobinemia. Nocht and Kikuth [6] have shown that very small quantities of quinine may facilitate the amboceptor hemolysis in animal experiments. Donath and Landsteiner [7] assert that during pregnancy autohemolysins are formed by a gradual disintegration of a large number of red corpuscles. It is believed that women with eclamptic tendencies are especially susceptible to hemolysis.

Quinine does not exert a direct action on the kidneys. It is readily excreted by the gastro-intestinal tract and the kidneys very shortly after intake. When the hemoglobin, following hemolysis, reaches a sufficient concentration in the blood it is excreted by the kidneys, and hemoglobinuria is recognized. The kidney damage is due to the accumulation of hemoglobin in the tubules, with mechanical blocking of the urinary flow, increasing oliguria or complete anuria and uremia.

A review of the literature revealed a total of eight fatal cases bearing on the problem of our discussion. Seitz [8] has reported three cases: A woman, aged 35, two months pregnant, was given three doses of 0.5 Gm. of quinine every two hours. Within five hours the urine became dark red. Spectroscopic examination revealed oxyhemoglobin and methemoglobin. Marked anemia developed. The blood urea increased to 250 mg. per hundred cubic centimeters. The patient died on the twelfth day. The cortex of the kidneys was a dirty grayish brown. A diagnosis of nephritis was made. His second patient, two months pregnant, showed excessive vomiting. She was given 1.5 Gm. of quinine in an attempt to induce an abortion. Within two hours hemoglobinuria developed, followed by jaundice. Seitz believes this was due to a sudden hemolysis of red cells the resistance of which had been lowered by the pregnancy. No histologic changes of the kidneys were described. In the third case, 0.5 Gm. of quinine was given in three doses to a woman three months pregnant, and an abortion was produced. The patient voided black urine, which contained much hemoglobin but no red cells. Autopsy was not obtained.

Kutz and Traugott [9] reported two cases. Their first patient was a woman, two months pregnant, in the state of abortion. She was given 0.4 Gm. of quinine in two doses; nausea and cyanosis developed, and she became irrational. Much hematoporphyrin was found in the urine, which was a dirty black in appearance. Postmortem observations were not conclusive. Thorough histologic examination of the kidneys was not reported. Their second case was similar to their first one.

Frommolt [10] reported a case in which a criminal abortion had been performed and quinine injection, in unknown dosage, had been given. At autopsy the kidneys were a dark brownish red, and a diagnosis of hemorrhagic nephritis was made. The author reported a second similar case.

Petri [4] described a case in which a woman of 26 had taken barbital, and in addition 1 Gm. of quinine each day for three days, at which time she died. Methemoglobinemia was noted clinically. Histologic examination of the kidneys showed hemoglobin masses in Bowman's capsules and in the lumens of the convoluted tubules. The tubules showed no epithelial damage.

Fig. 3.—Kidney cortex under medium power, showing granular and globular hemoglobin masses in convoluted tubules and loops of Henle. Capsules of Bowman are free. Note the focal interstitial inflammation in the upper left half of the picture. Paraffin section. Hematoxylin-eosin stain.

The eight patients who died after the administration of quinine were all in the early stage of pregnancy. In each case there was hemoglobinuria. Necropsy in seven instances demonstrated a marked renal lesion, which was diagnosed grossly as nephritis or hemorrhagic nephritis. In Petri's case alone there is an adequate histologic description of the hemoglobinuria, accompanied by a drawing.

Our case differs from that of Petri in that certain inflammatory changes developed in the kidneys in addition to the very marked hemoglobinuric infarcts present in large parts of the tubular system. This can be explained by the fact that at least seven days elapsed in our case between ingestion of the drug and the time of death. This time element may account for the severe degenerative epithelial lesions in the convoluted tubules in our case, which were not present in Petri's case.

2. Mezger, O., and Jesser H.: Deutsche Ztschr. f. d. ges. gerichtl. Med. **10**: 75 (July 12) 1927.
3. Raven, H. M.: Brit. M. J. **2**: 59 (July 9) 1927.
4. Petri, Else: Handbuch der speziellen pathologischen Anatomie und Histologie, X. Vergiftungen, Berlin, Julius Springer, 1930, p. 398.
5. Zoeller, C.: Bull. et mem. soc. med. d. hop. de Paris **47**: 1422 (July 20) 1931. Brahmachari, U.; Brahmachari, P., and Banerjea, R.: Am. J. Trop. Med. **12**: 117 (March) 1932. Westphal, K.: Klin. Wchnschr. **6**: 2474 (Dec. 24) 1927.
6. Nocht, B., and Kikuth, W.: Arch. f. Schiffs- u. Tropen-Hyg. **33**: 333 (July) 1929.
7. Donath and Landsteiner, quoted by Nocht and Kikuth.[6]
8. Seitz: Handbuch d. Biologie und Pathologie des Weibes **7**: 815, 1927.
9. Kutz and Traugott: Deutsche Ztschr. f. d. ges. gerichtl. Med. **10**: 75 (July 12) 1927.
10. Frommolt: Ztschr. f. Geburtsh. u. Gynäk. **101**: 454, 1932.

SUMMARY

1. A woman, approximately three months pregnant, had taken quinine, estimated as 100 grains (6.5 Gm.), and hemoglobinuria and uremia developed. The blood urea nitrogen reached 344 mg. per hundred cubic centimeters.

2. In the kidneys there was found marked distention of the tubular system, brought about by masses of hemoglobin (so-called hemoglobinuric kidney damage), associated with definite focal inflammatory lesions.

3. Three grains of quinine was recovered from the liver.

100 High Street.

HEART BLOCK AND PREGNANCY

REPORT OF A SUCCESSFUL DELIVERY

MITCHELL BERNSTEIN, M.D.

PHILADELPHIA

The problem of pregnancy in a patient with heart disease is always one of serious concern. Paul D. White [1] states that "the important question concerning heart disease in pregnancy is the prognosis, one of the most difficult problems in medicine." Should the gestation be terminated or should there be no intervention in a cardiac patient? Is there any assurance that in the gravidocardiac patient, with good cardiac compensation, heart failure may not develop later, because of the added burden of pregnancy? When the heart disease is due to complete heart block and pregnancy supervenes, as in the case here reported, what procedure should be followed?

It is interesting to note that a study of the literature up to Jan. 1, 1936, yielded only six [2] recorded cases of complete heart block in which successful gestation had occurred. Herrmann and King [3] reported one of these six cases. Their patient had had complete auriculoventricular heart block since the age of 20 and had had six successful deliveries without complications. The valvular damage had been slight, with evidence only of mitral insufficiency. Her heart rate was never over 40 per minute. She experienced no trouble in her six parturitions. With this very meager number of six cases, one naturally would be hesitant in making a definite decision in a patient with heart block and pregnancy.

HISTORY OF HEART BLOCK

Cecil [4] states that Morgagni in 1761 recorded the first case of heart block (Osler), while the Irish physicians Robert Adams in 1826 and William Stokes in 1846 published clinical accounts of the disease, later to be known as Adams-Stokes' syndrome. Gaskell in 1881 introduced the term "heart block," while in 1893 His discovered and described the narrow band of neuromuscular tissue between the auricle and the ventricle—the auriculoventricular bundle.

From the Departments of Medicine and Obstetrics, Jefferson Medical College Hospital.

1. White, P. D.: Heart Disease, ed. 1, New York, Macmillan Company, 1931.

2. Jeannin, C., and Clerc, A.: Dissociation auriculo-ventriculaire et grossesse, Bull. et mém. Soc. méd. d. hôp. de Paris **51**: 122-127 (Feb. 10) 1927. Clerc, A., and Levy, R.: Evolution de la dissociation auriculo-ventriculaire chez les jeunes sujets, Bull. et mém. Soc. méd. d. hôp. de Paris **52**: 490-498 (March 22) 1928. Laubry, quoted by Archigene, Titus, R. S., and Stevens, W. B.: Normal Pregnancy in Patient with Preexisting Complete Heart Block, Am. J. Obst. & Gynec. **22**: 773-777 (Nov.) 1931. Dressler, W.: Schwangerschaft und Herzblock, Wien. Arch. f. inn. Med. **14**: 83-96 (March) 1927. Herrmann and King.[3]

3. Herrmann, George, and King, E. L.: Cardiovascular Disturbances in the Obstetric Patient, J. A. M. A. **95**: 1472-1476 (Nov. 15) 1930.

4. Cecil, R. L.: A Text-Book of Medicine, ed. 3, Philadelphia, W. B. Saunders Company, 1933, pp. 1097-1099.

SYMPTOMATOLOGY OF HEART BLOCK

Patients with complete heart block may be comparatively free from any subjective symptoms. On the other hand, symptoms may occur from time to time and vary from dyspnea, palpitation of the heart, fatigue and faintness to frequent attacks of severe vertigo, with marked slowing of the pulse from 25 to 30 per minute. Adams-Stokes' syndrome, i. e., syncopal

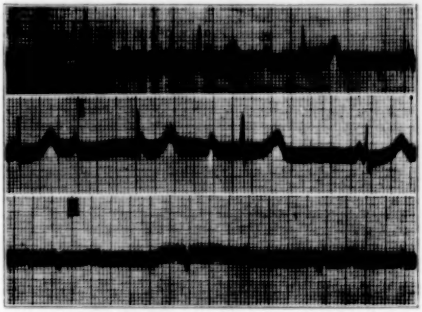


Fig. 1.—An analysis of the curves showing a ventricular rate of 52 per minute, with a slightly irregular rhythm; the auricular rate is 90 per minute, the rhythm being regular; complete heart block is present and, in addition, left ventricular hypertrophy is indicated. Myocardial degeneration would be indicated by reason of the damage to the conduction system.

attacks with heart block, may supervene and add further to the gravity of the situation. In heart block when the ventricle stands still for more than ten seconds, the symptoms will be of a cerebral nature varying from giddiness to loss of consciousness. These symptoms disappear with the beating of the ventricle.[5] Death,

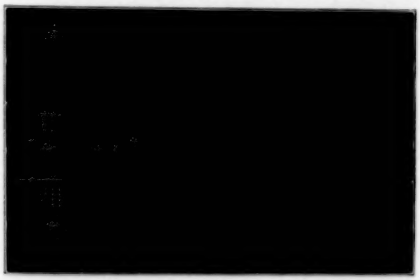


Fig. 2.—Aug. 5, 1933: tracing taken immediately after delivery, showing delayed conduction to 0.4 second.

however, may occur if the ventricular standstill is not interrupted after intervals of from ten to fifteen seconds.

PROGNOSIS OF HEART BLOCK

The existence of complete heart block usually implies severe and rather diffuse myocardial damage and hence grave disorder in the mechanics of the heart. Textbooks, in their descriptions of heart block, emphasize its peril and call attention to its not infrequent termination by sudden death. Mackenzie, cited by Cecil,

5. Mackenzie, James: Diseases of the Heart, ed. 4, London, Oxford University Press, 1925, p. 260.

observed that the patient is often found dead in bed or elsewhere. Cecil [6] remarks that patients with a mild form of heart block, even when the pulse rate is about 30, may lead quiet and uneventful lives for from ten to twenty years. Adams-Stokes' syndrome adds further to the peril. Sprague and White believe "the prognosis as regards life in the absence of marked demonstrable cardiac disease to be essentially good. The future, so far as the conduction defect is concerned, depends frequently upon an unknown factor and cannot be foreseen." In milder cases, no grave conditions arise from the delay or heart block itself.

Despite the usual grave prognosis of heart block, several authors have recorded cases of heart block of many years' duration in patients who have been relatively free from symptoms. Lewis [6] states that heart block per se does not kill and that, although it is usually a sign of serious and often progressive myocardial damage, it may exist for some time, especially in young persons who are relatively and absolutely in good health. Smith [7] reported a case of complete heart block of thirty years' duration with practically no difficulty or restricted activities. Ellis [8] reported one case of heart block of twenty-four years' duration, two of nine years' duration, one of seven years' duration, all free from cardiac insufficiency. Willius [9] reported a series of thirty-seven cases of complete heart block with an average duration of two and nine-tenths years, the longest duration being fifteen years. A case of intermittent heart block of twelve years' duration was reported by Russell-Wells and Wiltshire.[10] White, through Ellis,[8] reported two cases with complete heart block of fourteen and fifteen years' duration and yet free from cardiac symptoms. These two patients were quite well and led active lives.

Harris [11] reported a case in which heart block existed for twenty-eight years, and the patient had enjoyed good health during this time. In short, the prognosis in cases of heart block should be based on the condition of the myocardium together with a careful consideration of the etiologic factors involved. My patient evidenced no signs of cardiac failure despite the existence of heart block, a positive blood Wassermann reaction and a supervening pregnancy.

NATURE OF HEART BLOCK

Heart block, or auriculoventricular block, is a physiologic disturbance of the heart in which there is impairment of the conduction impulses from the auricles to the ventricles. The excitation wave in its spread from the time it leaves the sinus node until it reaches the auricular ventricular node of Tawara usually requires from 0.12 to 0.2 second, the latter being the upper limit of normal as recorded in the electrocardiogram. If the time interval is prolonged beyond 0.2 second the condition is known as "first degree heart block." Further involvement of the junctional tissue leads to second degree, or incomplete, heart block. Complete heart block exists when the electrocardiogram regularly shows ventricular complexes of slow rate,[12] which have no relation to the auricular activity. The ventricular rate is usually low, about 40 or less per minute, but may rarely reach as high as 70; the auricular rate is usually higher than the ventricular, depending on the rate of the rhythm originating in the sinus node or on that of an auricular ectopic center, as in auricular tachycardia. The auricular rhythm may be completely irregular, as in auricular fibrillation, or rapid and regular, as in auricular flutter.

CAUSES OF HEART BLOCK

Heart block may result in the course of acute inflammatory diseases, namely, diphtheria, influenza, rheumatic fever, endocarditis and nephritis. It may occur as a result of a chronic disease process involving the heart, such as syphilis. Vascular lesions such as arteriosclerosis involving the coronary arteries may lead to fibrotic, fatty and calcific [13] changes of the nodes, the bundle of His, and the myocardium. Thrombosis or embolism of the coronary arteries with infarction of the interventricular septum may lead to complete heart block. Digitalis in toxic doses may produce complete heart block. Bacterial toxins in tetanus and in intestinal toxemias [14] have been reported as causes. Heart block may also be of congenital, traumatic, senile or functional origin.

INCIDENCE OF HEART BLOCK

Sir James Mackenzie [15] in 1925 wrote: "Heart block is comparatively speaking a rare condition, but it is a subject of considerable importance in that it throws light upon vital processes which are present in every organ." He recorded observations in a series of patients with heart block and observed that "few people have the opportunity of seeing sufficient numbers of cases which illustrate all phases of the subject."

In the last fifteen years at the Massachusetts General Hospital,[16] in an electrocardiographic series of 9,000 cases in which there were cardiac symptoms or signs, auriculoventricular block was diagnosed in 581 cases (6.5 per cent). It was complete in seventy-six, or 13 per cent, of these 581 cases and partial in 505 cases, or 87 per cent. However, no mention is made as to the percentage of males and females in this series.

In a series of 1,200 cases of all types of cardiac irregularities, Hamburger, cited by Cecil, noted that 9.6 per cent were due to all types of heart block. The types of block were: partial block, 3.1 per cent; bundle branch block, 2.8 per cent; delayed PR interval (first degree block), 2.5 per cent, and complete auriculoventricular block, 0.8 per cent.

In an electrocardiographic series of 3,000 cases reported by Lemann [17] from the Touro Infirmary, there were thirty-eight cases of atrioventricular block, eleven of complete block, six of partial block, and twenty-one of delayed conduction time beyond 0.20 second. One of the complete blocks and one of the partial blocks occurred in patients aged 22 and 28 respectively.

Sprague and White [18] reported eleven cases of high grade heart block with varying etiologic factors in patients under the age of 30.

Hence, in the total number of 13,211 cardiac patients studied electrocardiographically by the foregoing authors, there were 108 cases of complete heart block.

6. Lewis, Thomas: Clinical Disorders of the Heart Beat, ed. 6, London, Shaw & Sons, 1925, p. 35.
7. Smith, H. L.: Am. Heart J. 8:719 (June) 1933.
8. Ellis, L. B.: Studies in Complete Heart Block: A Clinical Analysis of Forty-Three Cases, Am. J. M. Sc. 183:225 (Feb.) 1932.
9. Willius, F. A.: A Clinical Study of Complete Heart Block, Ann. Clin. Med. 3:129 (Aug.) 1924.
10. Russell-Wells, Sydney, and Wiltshire, H. W.: A Case of Intermittent Heart Block Observed for Twelve Years, Lancet 1:984 (May 20) 1922.
11. Harris, K. E.: Notes on a Case of Complete Heart Block of Unusually Long Duration, Heart 14:289 (March) 1929.
12. Criteria for the Classification and Diagnosis of Heart Disease, ed. 3, New York Tuberculosis and Health A., 1932, p. 110.
13. Yater, W. M., and Cornell, V. H.: Heart Block Due to Calcareous Lesions of the Bundle of His, Ann. Int. Med. 8:777-789 (Jan.) 1935.
14. Taylor, F. L.: A Case of Transient Heart Block Due to Intestinal Toxemia, J. A. M. A. 50:1246 (April 18) 1908.
15. Mackenzie, James: Diseases of the Heart, p. 250.
16. White, P. D.: Heart Disease, p. 674.
17. Lemann, I. L.: Heart Block in the Young, Ann. Int. Med. 7:779-787 (Dec.) 1933.
18. Sprague, H. B., and White, P. D.: High Grade Heart Block Under the Age of Thirty, M. Clin. North America 10:1235 (March) 1927.

It has been estimated by White [18] that about 90 per cent of the higher grades of block occurred in patients over 50 years of age, because of the greater incidence of coronary disease. Obviously, then, the possibility of pregnancy would be limited to the remaining 10 per cent of patients in the child-bearing period. The very few reported cases of heart block and pregnancy may be explained by the fact that not all cases of pregnancy are studied electrocardiographically and that these patients are younger than those in whom heart block usually develops.

REPORT OF CASE

C. B., a married woman, aged 23, of Spanish descent, admitted Nov. 16, 1931, to the Jefferson Medical College Hospital Dispensary in the service of the late Dr. Thomas McCrae, complained of precordial pain with radiation to the left shoulder and left arm. The symptoms had existed off and on for about one year prior to admission. There was no definite history of diphtheria, influenza or rheumatic fever.

The patient was married at the age of 17 years and had had many miscarriages. Her mother died of "Bright's disease" and an aunt died of heart disease.

Examination of the patient, November 16, was essentially negative except for the cardiac condition. The heart was slightly enlarged to the left. A cardiac arrhythmia existed, together with a slow heart rate varying from 40 to 50 per minute. A soft systolic murmur was audible at the cardiac apex. The blood pressure was 120 mm. of mercury systolic and 80 mm. of mercury diastolic. At subsequent examinations the bradycardia persisted, although occasionally the cardiac rate appeared to be normal.

Throughout the period of observation, over three years, the patient's blood pressure varied from 98 to 110 mm. of mercury systolic and from 55 to 74 mm. of mercury diastolic. Wassermann tests of the blood were reported as plus four on several occasions.

Electrocardiographic study of the patient, Nov. 27, 1931, made by Dr. Ross V. Patterson, showed a ventricular rate of 47 per minute, with a slight irregularity and an auricular rate of approximately 88 per minute, and regular. Complete auriculoventricular dissociation was present. Repeated examinations of the patient were made in 1932 but no evidence of cardiac decompensation was detected. Clinically the patient seemed rather comfortable, evidencing precordial distress only on occasions. Dr. Patterson later reported the following electrocardiographic observations: Jan. 22, 1932, the ventricular rate was 55 per minute and the auricular rate was 68, with complete dissociation. Both the auricular and the ventricular rhythms were regular. February 26 the ventricular rate was 50 per minute and the auricular rate 75 per minute, and a complete heart block was present.

Roentgen examination by Dr. John T. Farrell, February 3, showed that the heart was normal in appearance and its transverse diameter was not increased. It measured 12.5 cm., while that of the chest was 25 cm. The diaphragm was smooth and regular in outline. Subsequently roentgen examination on November 15 showed a moderate enlargement of the heart, the right ventricle being particularly involved, its diameter indicating moderate enlargement. The left ventricle was also very slightly increased in diameter over the normal.

Feb. 2, 1933, the patient reported that she was pregnant and believed that she was at the fourth month. At that time physical examination showed no evidence of cardiac decompensation, although the cardiac impulse was visible and palpable 10 cm. to the left of the midsternum at the fifth left interspace. Frequent examinations up to May 9 showed no marked changes in the patient's cardiac condition.

Electrocardiographic study, May 12, 1933, was reported as follows: The auricular rate was 70 per minute; there was uneven spacing of the ventricular beats, the time of individual beats, if continued, varying from 50 to 75 per minute. Complete dissociation was present. Antisyphilitic treatment, which had been instituted when the patient was first observed, was continued without a pause.

Clinically the patient appeared quite comfortable and despite the advanced pregnancy there were no apparent signs of decompensation. Moreover, the original precordial pain for which the patient was admitted to the dispensary service, Nov. 16, 1931, had apparently disappeared or at least was conspicuous by its absence.

Aug. 4, 1933, the patient began active labor, being then at full term. She was admitted to the service of Dr. P. Brooke Bland at the Jefferson Medical College Hospital. After thirty-six hours of active labor without any apparent progress Dr. Thaddeus L. Montgomery delivered her of a living baby by cesarean section under local anesthesia. Immediately following delivery the cardiac rate was 40 per minute. The patient was discharged from the maternity after two weeks of an uneventful puerperium.

Further electrocardiographic studies by Dr. Patterson, taken immediately after delivery, were as follows: August 5, the interval between auricular and ventricular contractions was the same and varied from 1.8 seconds to 1.2 seconds. The auriculoventricular conduction time was 0.4 second. Another record taken on the late afternoon of the same day showed regular rhythm of auricles and ventricles at 60 per minute, with the same auriculoventricular conduction time as before. August 8 the auricular and ventricular rates were 75 per minute and the conduction time was 0.4 second. August 9, the auricular and ventricular rates were 75 per minute; conduction time was 0.4 second. October 16, there was complete heart block. The auricular rate was 60 per minute and the ventricular rate 48 per minute.

Altogether, ten electrocardiographic studies were made on nine different dates, beginning Nov. 27, 1931, and ending Oct. 16, 1933. All showed complete dissociation of auricular and ventricular contractions, with the exception of two records on Aug. 5, 1933, and one record each on Aug. 8 and Aug. 9, 1933, in which there was delayed conduction without complete block. The last study, made Oct. 16, 1933, showed a reversion to complete block.

Physical examination Oct. 16, 1933, on several occasions during 1934 and again in January 1935 showed the patient to be free from any cardiac symptoms. She had gained some 15 pounds (6.8 Kg.) since the birth of her child in August 1933.

HEART DISEASE AND PREGNANCY

Bland [19] observes that "organic lesions of the heart wall or of its valves are sometimes seriously aggravated during pregnancy." Further, he states: "The strain of labor does not interfere with cardiac function, so long as compensation is maintained, but the exertion of the second stage may occasionally prove disastrous in threatened or frank incompetency. The great danger under such circumstances is acute dilatation of the right heart and sudden death."

De Lee [20] states: "My own experience has taught me to fear the complication of heart disease with pregnancy, for, even though one finally brings the patient through alive, the dangers that threaten at every step are very disquieting and when accidents do occur they require the promptest and most skilful treatment." De Lee further observes that "it is generally admitted that the heart is peculiarly liable to disease during gestation and that existing disorders are aggravated."

Pardee [21] in an article on cardiac conditions indicating therapeutic abortion remarks:

After 1924 the functional classification that had been introduced by the New York Heart Association was used in the cardiac antepartum clinic of the Lying-In Hospital, for it was considered inadvisable to have one functional classification for cardiac patients who were pregnant and another for those who were not.

The basis of this functional classification is the patient's history of her ability to perform the ordinary physical activity

19. Bland, P. B., and Montgomery, T. L.: Practical Obstetrics for Students and Practitioners, Philadelphia, F. A. Davis Company, 1934, pp. 71 and 144.

20. De Lee, J. B.: Principles and Practice of Obstetrics, ed. 6, Philadelphia, W. B. Saunders Company, 1933, p. 536.

21. Pardee, H. E. B.: Cardiac Conditions Indicating Therapeutic Abortion, J. A. M. A. 103: 1899-1902 (Dec. 22) 1934.

of her everyday life, without unusual shortness of breath or palpitation. The patient's statements as to her ability to exercise are combined with an observation of the pulse rate and the respiratory reaction after a rather strenuous test exercise performed in the presence of the physician. According to the results of this method, cardiac patients are divided into four categories as follows:

Class 1. Patients with heart disease who are able to undertake ordinary physical activity without discomfort, such as palpitation or dyspnea, and who perform the test exercise without unusual tachycardia or dyspnea.

Class 2A. Patients whose ordinary activity is slightly limited because of the appearance of dyspnea, palpitation or fatigue, and who show somewhat excessive tachycardia and dyspnea after the test exercise.

Class 2B. Patients whose activity is greatly limited because of the appearance of dyspnea or palpitation and who show marked tachycardia and dyspnea after the test exercise, or who are unable to complete it.

Class 3. Patients whose activity is so limited as to make them unable to walk around without dyspnea or palpitation and who are so evidently dyspneic after such slight efforts as getting into and out of bed or walking across the room as to make any other exercise test unnecessary.

The foregoing classification, which is essentially that suggested in the Criteria for the Classification and Diagnosis of Heart Disease,[12] has been the one I have used. The patient in this case was grouped in class 1, since she did not show physical signs of cardiac insufficiency or any discomfort after ordinary activity.

It is obvious that to the usual perils of pregnancy in the cardiac patient one must take into account in a case such as that just reported the superimposed dangers that may arise because of an existing heart block.

COMMENT

The etiology of the heart block in the case here reported is probably due to syphilis. Blood Wassermann tests were repeatedly plus four, while the history of the case failed to tell of any of the other causes of heart block.

Antisyphilitic treatment was instituted when the patient first came under my observation in November 1931 and was continuous through the gestation in 1933. Of special interest is the fact that the complete heart block was changed to delayed auriculoventricular conduction time of 0.4 second, Aug. 5, 1933, immediately following delivery. This persisted at least until August 9, as evidenced by the electrocardiograms. Later electrocardiographic studies showed a reversion to complete heart block.

CONCLUSION

Experience with this case of heart block and pregnancy, in addition to the six similar cases reported by others, suggests that the gestation should not be interrupted if cardiac compensation maintains. Patients with heart block and pregnancy should be observed frequently. Electrocardiographic studies are advisable. Sufficient rest should be obtained by the patient, thus avoiding overexertion and cardiac decompensations. Prolonged labor should not be permitted, and delivery should be by cesarean section or by the use of forceps. Local or spinal anesthesia should be used.

There is no escape from the fact that pregnancy should be terminated if heart failure occurs in a gravidocardiac patient including heart block. Fortunately in the case here recorded there were no signs of decompensation during the period of gestation. Hence the patient was permitted to go to full term. The result justified the conservative measures.

1321 Spruce Street.

THE EFFECT OF EPHEDRINE ON THE EMPTYING TIME OF THE HUMAN STOMACH

EDWARD J. VAN LIERE, PH.D., M.D.
DONALD H. LOUGH, B.S.
AND
CLARK K. SLEETH, B.S.
MORGANTOWN, W. VA.

Since the introduction of ephedrine for therapeutic use by Chen and Schmidt in 1924,[1] it has been widely used in clinical medicine. It probably enjoys the greatest use in asthma, hay fever and hypotensive states. It is, however, used in many other conditions. Wood [2] found it of use in a case of Adams Stokes' syndrome; Doyle and Daniels [3] reported its use in the treatment of narcolepsy, and Arnett [4] reported using it in amytal poisoning. Other instances could be enumerated in which new uses have been found for this drug.

Considerable work has been reported on the effect of ephedrine on the gastro-intestinal tract. Kinnaman and Plant,[5] working with unanesthetized dogs that had permanent gastric fistulas, observed that ephedrine relaxed gastric tone and inhibited motility. McCrea and MacDonald [6] found that ephedrine inhibited gastric peristalsis and caused a fall in intragastric pressure in cats. Marcu and Savulesco,[7] using the balloon method, found that minute doses of ephedrine caused transitory contraction but that larger quantities produced inhibition of gastric movements.

In view of these studies and since ephedrine is used so widely in medicine, it was thought well worth while to study its effect on the emptying time of the stomach in man.

METHOD

The normal emptying time of the stomach was ascertained fluoroscopically in six healthy young male subjects. The experimental meal was given at 8:30 a. m. No food had been taken since the evening before. The standard meal consisted of 15 Gm. of Quaker Farina. This was boiled in 350 cc. of water until it reached a total volume of 200 cc.; 1 Gm. of salt was added for flavor and barium sulfate (50 Gm.) was added so that the contents of the stomach could be seen with the fluoroscope. Approximately eight control determinations of the emptying time of the stomach were made on each individual. The average of these figures was used for the control.

The effect of the ephedrine sulfate was now studied. One grain (0.065 Gm.) of ephedrine sulfate with about 3 ounces (90 cc.) of water was given about twenty minutes before the standard meal was eaten. The emptying time of the stomach was determined fluoroscopically as already described. Attention was given, of course, to all details that were essential for carefully controlled experimental conditions.

From the Department of Physiology, University of West Virginia. Aided by a grant from the Committee on Scientific Research of the American Medical Association.

1. Chen, K. K., and Schmidt, C. F.: The Action of Ephedrine, the Active Principle of the Chinese Drug Ma Huang, J. Pharmacol. & Exper. Therap. **24**:339 (Dec.) 1924.
2. Wood, J. E.: Ephedrine in Adams-Stokes' Syndrome, J. A. M. A. **98**:1364 (April 16) 1932.
3. Doyle, J. B., and Daniels, L. E.: Narcolepsy: Results of Treatment with Ephedrine Sulfate, J. A. M. A. **98**:543 (Feb. 13) 1932.
4. Arnett, J. H.: Ephedrine and Picrotoxin Used Successfully in Amytal Poisoning, J. A. M. A. **100**:1393 (May 20) 1933.
5. Kinnaman, J. H., and Plant, O. H.: Effect of Ephedrine on Intestinal Contractions in Unanesthetized Dogs, J. Pharmacol. & Exper. Therap. **21**:212 (July) 1927.
6. McCrea, E. D., and MacDonald, A. D.: Action of Drugs on Movements of Stomach, Quart. J. Exper. Physiol. **19**:161 (April) 1928.
7. Marcu, I., and Savulesco, A.: Motilité de l'estomac sous l'influence de l'ephedrine; considerations sur l'amphotropisme de cet alcaloide, Comp. rend. Soc. de biol. **98**:243 (Jan. 27) 1928.

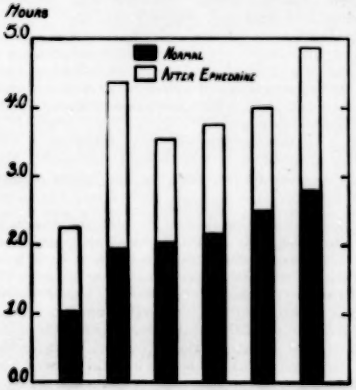
RESULTS

The accompanying table and chart show the results obtained.

The table shows that there is considerable variation in the normal emptying time of the stomach. The extremes were 1.03 hours and 2.80 hours. The average for the six individuals was 2.07 hours. It will be seen that ephedrine produced a marked effect on the emptying time of the stomach. In two individuals it was prolonged over 118 per cent and in no case was the prolongation less than 72.8 per cent. The average prolongation of gastric evacuation for the six individuals was 91.66 per cent.

The Effect of Ephedrine on the Emptying Time of the Stomach

Subject	Normal in Hours	Effect of Ephedrine in Hours	Delay Caused by Ephedrine in per Cent
1	2.17	3.75	72.80
2	1.94	4.37	125.30
3	1.03	2.25	118.40
4	2.50	4.50	80.00
5	2.02	3.62	79.40
6	2.80	4.87	74.10
Average	2.07	3.89	91.66



Effect of ephedrine on the emptying time of the human stomach.

COMMENT

It is generally conceded that ephedrine has an action similar to that of epinephrine. The main difference is that the former has a much more sustained action. Both preparations stimulate the sympathetic nervous system. The sympathetic fibers to the stomach are carried by the splanchnic nerves. These fibers, when stimulated, inhibit stomach motility. It would be expected then that ephedrine would delay gastric evacuation.

Not only is ephedrine capable of stimulating the sympathetic fibers but it may also have a further action in that it may relax the smooth muscle. Chen and Schmidt [8] reported that the effect of ephedrine on isolated muscle of the intestinal tract was inconstant but that it more frequently inhibited than stimulated. Swanson [9] found that practically all the ephedrine-like compounds showed distinct inhibition of intestinal movements. Balyeat and Rinkel [10] reported that ephedrine may relax the bladder and give rise to urinary retention; in fact its use is suggested for nocturnal enuresis.

It may well be, then, that ephedrine has two distinct actions on the stomach; first, it may stimulate the sympathetic fibers, which would cause diminished motility of the stomach, and, second, it may actually relax the smooth muscle directly.

Besides these modes of action of ephedrine, its effect on the pylorus sphincter must be considered. As far as we are aware, there is nothing in the literature that deals with the effect of ephedrine on the pylorus. Thomas,[11] however, has reported considerable work on the influence of epinephrine on the pyloric sphincter. He found that on the whole no pronounced changes in tonus of the pyloric sphincter were caused by epinephrine; it is apt to increase the tonus of the pylorus when the muscle is relaxed and may decrease the tonus when the muscle is contracted. It is possible, in lieu of these observations, that ephedrine may have caused a certain amount of increased tonus of the pyloric sphincter. It is very problematic in our judgment that this was an important factor in delaying the emptying time of the stomach. We feel that the real delay was caused by the factors already mentioned.

We wish at this point to emphasize the fact that the results reported in this paper may well have important clinical significance. If a patient, for example, is receiving ephedrine sulfate regularly for some chronic ailment such as a hypotensive state or asthma, there is every reason to believe that the emptying time of the stomach of such a patient would certainly be delayed. Furthermore, in evaluating the experimental results obtained it is necessary to point out that the standard test meal used consisted practically of carbohydrates. This meal left the stomach quickly, as our control figures show. If, on the other hand, a larger meal had been given containing not only carbohydrates but also fats and proteins, and if we are allowed to assume that gastric evacuation would be proportionally prolonged, food would be retained in the stomach for a long time indeed.

The fact that ephedrine has such a marked effect on gastric motility makes it not unreasonable to suppose that ephedrine could cause a certain amount of stasis in the small and large intestine.

In view of the results reported in this paper it is suggested that the clinician pay considerable attention to the diet as well as to the elimination in patients who are receiving ephedrine regularly.

SUMMARY AND CONCLUSIONS

It was found that under carefully controlled conditions ephedrine sulfate in therapeutic doses, 1 grain (0.065 Gm.) prolonged the emptying time of the stomach in six healthy young male subjects. In the case of two individuals, gastric evacuation was prolonged over 118 per cent. In no case was the prolongation less than 72.8 per cent. The average prolongation for the six individuals was 91.66 per cent.

In view of the fact that ephedrine is so widely used in more or less chronic conditions such as asthma, hypotensive states and hay fever, it is felt that the results reported in this paper are of interest to clinical medicine.

8. Chen, K. K., and Schmidt, C. F.: Ephedrine and Related Substances, Medicine **9**:1 (Feb.) 1930.
9. Swanson, E. E.: A Comparative Pharmacological Study of Some Related Ephedrine Compounds, J. Am. Pharmaceut. A. **21**:1125 (Nov.) 1932.
10. Balyeat, R. M., and Rinkel, H. J.: Urinary Retention Due to the Use of Ephedrine, J. A. M. A. **98**:1345 (April 30) 1932.
11. Thomas, J. E.: A Further Study of the Nervous Control of the Pyloric Sphincter, Am. J. Physiol. **88**:498 (April) 1929.

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Clinical Notes, Suggestions and New Instruments

UNUSUAL ORIGIN OF A MECKEL'S DIVERTICULUM FROM THE BASE OF THE APPENDIX

M. N. HADLEY, M.D., AND H. D. COGSWELL, M.D., INDIANAPOLIS

Meckel's diverticulum, once considered a medical curiosity, has come to be recognized as a definite pathologic entity, as the result of the abundance of literature that has appeared in late years. In the years 1930-1931 and the first half of 1932, fifty-six articles appeared in the literature of the different countries dealing with Meckel's diverticulum.[1]

Lavater [2] in 1671 was one of the first to record a case of diverticulum of the terminal ileum. In 1707 an excellent illustration of a diverticulum of this type was given by Ruysch.[3] Morgagni [4] discussed diverticula of the intestine in his treatises in 1809, but it remained for Meckel in the same year to advance the theory of its origin and to describe the condition more fully. There were only occasional reports of the complications arising from a Meckel's diverticulum until 1905, when Porter [5] collected reports of 184 pathologic cases, stressing the importance of this embryologic remnant. Since that time there have been many reports published of the various anomalies and complications existing with a Meckel's diverticulum, but no record can be found similar to the case here recorded.

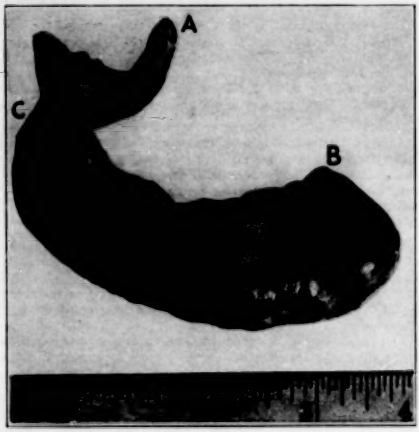

Fig. 1.—*A*, appendix; *B*, origin of the band of tissue that extended to the umbilicus; *C*, junction of the appendix and the diverticulum.

The distance that a Meckel's diverticulum is found from the ileocecal valve varies greatly. We have been unable to find a report of a diverticulum originating nearer to the ileocecal valve than 4 cm.[6] Von Rokitansky [7] believed that it was 1 to 2 feet from the cecum. Cunningham's anatomy [7] states that in a large series of autopsies the greatest distance was 12 feet and the smallest distance was 6 inches. In Christie's [2] series the site of the diverticulum varies from 6 to 36 inches.

The illustrations were made by Mr. F. Glore and Mr. H. Salinger. From the division of general surgery, Indiana University School of Medicine.

1. Hudson, H. W., Jr.: Meckel's Diverticulum in Children, New England J. Med. 208:525 (March 9) 1933.
2. Quoted from Christie, A. U.: Meckel's Diverticulum, Am. J. Dis. Child. 42:544 (Sept.) 1931.
3. Ruysch, Fredericus: Thesaurus anatomicus, Amsterdam, J. Wolters, 1707, vol. 7, fig. 283.
4. Morgagni, quoted from Michael, Paul: Tuberculosis of Meckel's Diverticulum, Arch. Surg. 25:1152 (Dec.) 1932.
5. Porter, M. F.: Abdominal Crises Caused by Meckel's Diverticulum, J. A. M. A. 45:883 (Sept. 23) 1905.
6. Keen, W. W.: Principles and Practice of Surgery, Philadelphia, W. B. Saunders Company 4:667, 1908.
7. Cunningham's Textbook of Anatomy; ed. 5, New York, William Wood & Co., p. 1200.

REPORT OF CASE

This case is presented because of the unusual location of a Meckel's diverticulum:

History.—M. L., a white boy, aged 9 years, entered the James Whitcomb Riley Hospital Aug. 1, 1934, complaining of pain in the right lower quadrant of the abdomen, nausea and vomiting. The past history was irrelevant except for the usual diseases of childhood. The family history revealed that the patient had had a younger brother who died of intussusception at the age of 9 months. The boy had been feeling well until the day before admission to the hospital. On the morning of July 31 he had been walking stooped over and, on questioning, his mother found that he was having pain in the right lower quadrant. He was given magnesia magma and by noon he had vomited and was crying with pain. That evening he was given another laxative and he slept poorly.

Examination.—The physical examination showed right rectus rigidity, rebound tenderness, pain and tenderness over McBurney's point; a mass about the size of a plum was palpated in this area. Laboratory studies revealed a normal urinalysis, normal red blood count and hemoglobin; the white blood count was 12,450, with 38 per cent polymorphonuclears, 1 per cent basophils, 12 per cent lymphocytes, 2 per cent myelocytes, 2 per cent metamyelocytes and 45 per cent band cells. The Wassermann reaction was negative.

Operation and Course.—A preoperative diagnosis of acute appendicitis was made, and the abdomen was opened through a McBurney incision. Lying lateral to the cecum, a discolored sausage shaped mass was found (fig. 1), which originated from the base of the appendix and proved to be a diverticulum of the appendix. At the distal end of the mass there was a band of tissue containing a few small blood vessels, which ran mediad and was attached to the underside of the umbilicus. This band was ligated and cut. The appendix was then ligated and amputated.

The pathologic condition was evidently due to the rotation of this diverticulum from a medial position to its lateral position in relation to the cecum. This produced a torsion in the appendix, obstructing its lumen and causing a circulatory disturbance, which was responsible for the acute condition found.

The patient made an uneventful convalescence and left the hospital, August 11. Pathologic examination by Dr. C. G. Culbertson revealed that the gross specimen consisted of an appendix and, 1.5 cm. from the base of the appendix a large diverticulum, which was cylindric and measured approximately 9 cm. in length. At the distal end of the diverticulum was a ligated cylindric cord, which was said to be attached at the distal end to a region near the umbilicus. No structure resembling a peptic ulcer was present. The appendiceal attachment of the diverticulum was split open, and it was seen to have a small lumen, which was continuous with the lumen of the appendix.

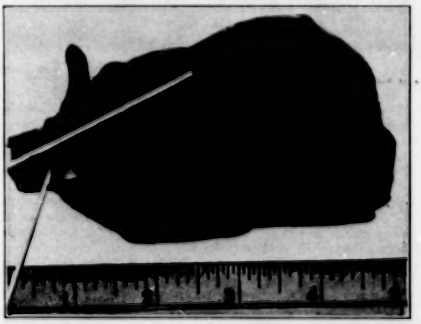

Fig. 2.—The diverticulum opened and a probe introduced from the diverticulum to its opening into the appendix.

A section of the wall of the diverticulum showed on microscopic examination the peritoneal layer and the subperitoneal

layer to be edematous and to be diffusely infiltrated with lymphocytes, plasma cells and eosinophils. Both muscular coats showed leukocytic infiltration. The mucosa was that of the large intestine. The lining epithelium of the mucosa was ulcerated in many places and contained polymorphonuclear leukocytes. A section of the structure that connected the diverticulum with the umbilicus showed only a mass of fibrous tissue containing numerous veins and arteries.

COMMENT

The unusual location of this diverticulum can be better understood if the embryology of its formation is considered.

The yolk sac in the human embryo develops early, and at the end of the second week is a sac with a wide opening into the intestine. During the third week the yolk sac becomes somewhat constricted off, remaining connected, however, with the lumen of the intestine by a pedicle, called the yolk stalk or vitelline duct.

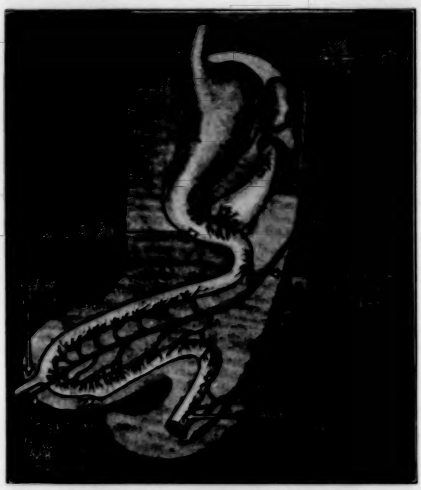

Fig. 3.—Loop of intestine and umbilical coelom with the yolk stalk still intact. Anlage of cecum.

The yolk stalk is attached to the intestine a short distance from the stomach in the primitive gut, which at this early stage forms a simple tube of uniform diameter extending from the stomach to the caudal end of the embryo. A portion of the gut then forms a loop, the apex of which extends into the umbilical coelom and is attached to the yolk stalk (fig. 3). Soon after the loop is formed, a small evagination appears in the descending portion of the loop, not far from the apex. This is the anlage of the cecum.[8] This anlage for a time continues to increase uniformly in size; then the proximal end increases more rapidly than the distal and forms the cecum. The distal end, failing to keep pace in development, remains slender and forms the vermiform appendix.

Usually at the time that the anlage of the cecum can be defined, the yolk stalk becomes reduced to a cord of cells in the umbilical cord and separates from the loop of gut. In a small percentage of cases that portion of the yolk stalk lying between the intestine and the umbilicus fails to degenerate and is then known as a Meckel's diverticulum. This marks the position of the original "apex" of the umbilical loop.[9]

Evidently, in this case, the yolk stalk, at the apex of the umbilical loop, was attached to that area of gut where the anlage of the cecum was to make its appearance. During the development of the appendix and cecum this was at the distal end of the anlage, so that at the end of their development the diverticulum was present at the base of the appendix.

809 Hume-Mansur Building.

8. Bailey, F. R., and Miller, A. M.: Text-Book of Embryology, New York, William Wood & Co., 1929, p. 306.
9. Frazer, J. E.: Manual of Embryology, London, Bailliere, Tindall & Cox, 1931, p. 399.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

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Council on Pharmacy and Chemistry and Committee on Foods

The Council on Pharmacy and Chemistry and the Committee on Foods of the American Medical Association record with deep sorrow the death, Dec. 9, 1935, of

LAFAYETTE BENEDICT MENDEL

Born at Delhi, N. Y., Feb. 5, 1872, Professor Mendel was graduated from Yale University in 1891. He became interested in physiology and physiologic chemistry as a student under Prof. Russell H. Chittenden and received the degree of Doctor of Philosophy in that department of study in 1893. After a period of study and travel abroad he returned to Yale, where he achieved conspicuous success as a teacher. He was appointed professor of physiologic chemistry in 1903, and in 1920 he was appointed to the newly created Sterling professorship, which position he held up to the time of his death.

As an investigator his interest was chiefly in the field of nutrition, and his wide reputation in that field grew in large measure out of his joint contributions with Dr. Thomas B. Osborne of the Connecticut Agricultural Experiment Station, where for many years, and until his death, he was associate biochemist. These outstanding biologic studies revealed wide differences between various proteins in the alimentation of animals and brought to light many hitherto obscure facts concerning the rôle of amino acids, vitamins and inorganic constituents in the phenomena of growth and nutritional well being. He published alone or with associates nearly 300 scientific papers and in addition wrote many editorials, reviewed many scientific books and made numerous popular addresses. His essays "Childhood and Growth," "Changes in the Food Supply and Their Relation to Nutrition" and "Nutrition, the Chemistry of Life" are in book form. Professor Mendel's familiarity with scientific literature, his command of English and his unusual powers of exposition enhanced the force of his scientific works and gave them literary charm.

In an advisory and consulting capacity he served his university on numerous departmental boards and committees, among them the Board of Permanent Officers of the Yale Graduate and Medical schools and the Governing Board of the Sheffield Scientific School. During the World War he gave generously of his time to various activities under the auspices of the Department of Science and Research of the Council of National Defense and as a member of the Interallied Scientific Food Commission.

Professor Mendel was keenly interested in the chemical aspects of problems in medicine, and in 1934 the New York Chemists' Club awarded him the Conné medal for his outstanding contributions in that field. This interest together with his profound knowledge of physiologic chemistry and nutrition made his service to the Council on Pharmacy and Chemistry and to the Committee on Foods of the American Medical Association, of inestimable value. He served the Council for eighteen years and the Committee from the beginning of its work; and he served both with characteristic interest and loyalty.

Abundant and deserved recognition came to him in the form of academic honors, citations by learned societies, and recognition by industrial and trade associations of national scope, thus indicating at once the wide appreciation of his scientific achievements and the breadth of his interests.

On his sixtieth birthday former students of Professor Mendel presented him with a portrait of himself done by John Quincy Adams. This testimonial of regard and affection suggests those finer attributes of the man himself, which impressed his pupils, his colleagues and his friends, and which are aptly described by his contemporary, Dr. Graham Lusk, who has said of him:

> "He has been the guide, philosopher and friend to many young men and women; he has encouraged them to walk by themselves when they were able to stand alone; and he has given wise counsel in times of difficulty. Herein he has shown himself as one of the great teachers of his time."

His colleagues on the Council and the Committee will remember him for his high ideals of service, his vision and his knowledge; but they will cherish his memory no less as a wise and sympathetic counselor and loyal friend, who commanded their confidence and won their esteem.

Committee on Foods

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Analysis (submitted by manufacturer).—

	per cent
Moisture	74.2
Total solids	25.8
Ash	1.5
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Analysis (submitted by distributor).—

	per cent
Moisture	85.3
Ash	0.4
Fat (ether extract)	0.3
Protein (N × 6.25)	0.3
Reducing sugars as invert sugar	8.6
Sucrose (copper reduction method)	3.7
Crude fiber	0.02
Carbohydrates other than crude fiber (by difference)	12.8
Titratable acidity as citric acid	0.9
Calcium (Ca)	0.02
Copper (Cu)	0.0002
Iron (Fe)	0.0005
Magnesium (Mg)	0.02
Manganese (Mn)	0.0003

Calories.—0.6 per gram; 17 per ounce.

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SATURDAY, FEBRUARY 15, 1936

ALLERGY, IMMUNITY AND THE TUBERCULIN REACTION

At this time respiratory disease occupies more than its usual share of clinical attention. The differentiation of tuberculous from nontuberculous pulmonary diseases becomes of increasing importance. The recent communication of Dr. Myers [1] in THE JOURNAL justly and properly focuses attention on the tuberculin reaction and its genesis, course and significance. In the past it was generally assumed that a positive Mantoux test signified immunity (as well as allergy) to the tubercle bacillus and contrariwise that a negative test meant lack of infection, lack of allergy and absence of immunity. Experimental evidence now shows convincingly that this visible reaction is not a necessary concomitant of immunity and that the latter can function fully and effectively in the complete absence of evidence of this hypersensitivity.[2] Further, it has even been shown that the allergic necrotizing-inflammatory response, far from being helpful or protective, may even be injurious.[3] The so-called anergic, or nonreactive, phase has long been known—a negative response in the presence of highly active or overwhelming infection. These investigations and others tend to refute the frequently heard contention that a negative tuberculin test means absence of immunity. It is not improbable that an early infection even without the almost inevitable subclinical reinfections may leave an immunity lasting long after the positive skin test has completely disappeared or at least defies detection.

Much of our present information is empirical and, in making any empirical study,[4] clearly understood and uniform criteria are prerequisite. The absence of such criteria in clinical investigations of tuberculosis has been an obstacle to more rapid progress. The possibility that various observers are seeing different forms of tuberculosis in their respective localities is another hindrance. Erythema nodosum is such an example. Workers in tuberculosis in the United States and other sections of the Western World see less erythema nodosum than their clinical colleagues in Europe and the Old World; further, there is no general agreement that its etiology is tuberculous. Though most investigators feel that it is an allergic manifestation of some sort, its true nature as yet unknown. Nor should we allow ourselves to be lulled into an attitude of false security by such apparently satisfying terms as resistance and immunity. These are merely relative. The course of any infection is determined by the size and virulence of the infecting inoculum and by the state of the host's immunity or resistance (be it inherent or acquired, active or passive) and is to a large extent conditioned and modified by the degree of activity of his specific hypersensitive state. The activity of the latter is known to fluctuate unpredictably and may depend largely on the factor of time alone. Allergy to the tubercle bacillus may last a lifetime (the result of how many subclinical reinfections we have no way of knowing), whereas allergy to a micro-organism such as the pneumococcus is quite short lived. The state of resistance, however, is much less easily ascertained; some estimate can frequently be made from the individual history, from the racial and constitutional type, and occasionally from immunologic and bacteriologic laboratory studies. All too commonly, survival from infection is its only real measure.

Finally, then, on what is the diagnosis of tuberculosis to be made? The finding of a negative response to tuberculin will rule out tuberculosis as the basis of certain clinical disorders, whereas a positive test means only that the hypersensitivity is present.[5] In each instance the possible relationship of this hypersensitivity to the disease under observation still remains to be proved. The tuberculin test is of definitely limited value. No test or method will supersede the painstaking study of the individual patient. This together with the recognition of the ever present possibility of tuberculous infection will allow few cases to go undiscovered. An upper lobe pneumonia that resolves with abnormal slowness or incompletely or a long standing "postinfluenzal asthenia with low grade fever" is at times explained with extraordinary ease by a careful search of the sputum or the roentgenogram of the chest. If each patient is to get the best management and if we are to maintain the advances made against the ravages of the "white plague," we cannot afford to relax vigilance.

1. Myers, J. A.: The Tuberculin Reaction, J. A. M. A. **105**: 1702 (Nov. 23) 1935.

2. Rich, A. R.: Lancet **2**: 521 (Sept. 2) 1933. Rich, A. R.; Jennings, F. B., Jr., and Downing, L. M.: Bull. Johns Hopkins Hosp. **53**: 172 (Oct.) 1933. Rich, A. R.: Acta pædiat. **16**: 1, 1933. Rothschild, Herbert; Friedenwald, J. S., and Bernstein, Clarence: Bull. Johns Hopkins Hosp. **54**: 232 (April) 1934. Clawson, B. J.: Arch. Path. **19**: 673 (May) 1935; J. Infect. Dis. **53**: 157 (Sept.-Oct.) 1933; Proc. Soc. Exper. Biol. & Med. **31**: 165 (Nov.) 1933. Clawson, B. J., and Baker, A. B.: J. Infect. Dis. **56**: 297 (May-June) 1935.

3. Rich and others.[2] Seibert, F. B.: Proc. Soc. Exper. Biol. & Med. **30**: 1274 (June) 1933.

4. Myers, J. A.: Am. Rev. Tuberc. **27**: 121 (Feb.) 1933. Myers, J. A., and Harrington, F. E.: The Effect of Initial Tuberculous Infection on Subsequent Tuberculous Lesions, J. A. M. A. **103**: 1530 (Nov. 17) 1934. Ustvedt, H. J.: Initial Infection with Tuberculosis and Subsequent Lesions, ibid. **104**: 851 (March 9) 1935. Heimbeck, Johannes: Tuberculous Infection, Arch. Int. Med. **47**: 901 (June) 1931.

5. Hamman, Louis, and Wolman, Samuel: Tuberculin in Diagnosis and Treatment, New York, D. Appleton & Co., 1912.

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THE IODINE REQUIREMENT OF MAN

The importance of iodine in human nutrition and the relation of this element to hypertrophy of the thyroid gland were suggested in the earliest medical writings. It has been stated [1] that the Chinese knew of the beneficial effect of substances now known to be rich in iodine many centuries before the time of Christ and that the feeding of the ash of the sponge, also known to contain large amounts of iodine, was a common treatment for goiter at the time of Hipprocrates and Galen. Similar accounts appear in early American literature. In a "History of the White Mountains," Mrs. Lucy Crawford [2] refers to the frequency of enlargement of the thyroid gland in natives of Coos County, N. H., at the close of the seventeenth century and relates how her grandfather brought sea salt, a bushel at a time, 80 miles over the mountains on his back. The suggestion that the chemical element iodine itself was effective in the treatment of goiter was made in 1820 by Coindet,[3] only nine years after the discovery and isolation of iodine as a chemical entity by Courtois. Soon after this, in 1833, iodized salt was suggested for the prevention of goiter by the young French chemist Boussingault.[4] The effectiveness of iodine in the control of goiter was largely discredited at the time of these reports and not until 1895, when Baumann [5] actually demonstrated the presence of iodine in the thyroid gland, was the relationship unequivocally established.

As in the case of other elements and substances necessary for human welfare, questions soon arose regarding the amount of iodine needed to meet the daily human requirement. Information in this direction has been secured by the use of the well known nutritional device the method of "balance" determinations, in which the amounts of the substance in question that are excreted and retained are determined in subjects ingesting varying quantities. The first comprehensive study of this type on iodine [6] indicated that a normal adult human subject remained in positive iodine balance when as little as 17 micrograms of the element was consumed in the daily diet. Approximately 84 per cent, or 14 micrograms, of the ingested iodine was excreted. It is of some interest that considerable amounts of iodine, from 10 to 15 per cent of the total, were excreted in the sweat and nasal secretions, and that approximately 80 per cent appeared in the urine and from 5 to 10 per cent in the feces. As might be expected, there was an increased excretion of iodine in subjects consuming larger amounts of the element; a maximum retention of approximately 20 micrograms was observed. Similar results have been recorded in a series of twelve normal subjects ingesting from 54 to 155 micrograms of iodine daily [7] and, more recently,[8] on two normal individuals consuming 56 and 156 micrograms, respectively, of iodine each day. Unfortunately, in the latter study the amount of iodine excreted in the sweat was not determined. From the data recorded in the foregoing investigations it appears that the daily iodine retention in normal individuals consuming varying amounts of this element does not exceed between 15 and 25 micrograms, thus indicating that the actual requirement of the normal human adult probably does not exceed 25 micrograms daily. Undoubtedly the suggested value of 50 micrograms daily as the amount that should be present in the human dietary allows a satisfactory margin of safety.

In patients with certain diseases of the thyroid gland there appear to be significant variations from the normal in the excretion of iodine. In cases of hyperthyroidism with or without goiter, for example, there is a marked increase in the amount of iodine excreted daily in the feces.[9] It has also been stated that there is an increased loss of iodine in the sweat of patients with hyperthyroidism.[7] Changes such as these in the excretion of iodine in diseases of the thyroid gland are of singular interest and merit further thorough investigation.

1. Marine, David: Iodine in the Treatment of Diseases of the Thyroid Gland, Medicine **6**: 127 (Feb.) 1927.
2. Crawford, Lucy, cited by Marine.[1]
3. Coindet: Découverte d'un nouveau remedie contre le goitre, Ann. de chim. et phys. **15**: 49, 1820.
4. Boussingault, M.: Mémoire sur les salines iodifères des Andes, Ann. de chim. et de phys. **54**: 163, 1833.
5. Baumann, E.: Ueber das normale Vorkommen von Jod im Tierkörper, Ztschr. f. physiol. Chem. **21**: 319, 1895.
6. von Fellenberg, T.: Das Vorkommen, der Kreislauf, und der Stoffwechsel des Jods, Ergebn. d. Physiol. **25**: 176, 1926.
7. Scheffer, L.: Ueber die Jodbilanz normaler Menschen, Biochem. Ztschr. **259**: 11, 1933; Jodstoffwechsel bei Schilddrüsenkranken, Klin. Wchnschr. **12**: 1285 (Aug. 19) 1933.
8. Cole, V. V., and Curtis, G. M.: Human Iodine Balance, J. Nutrition **10**: 493 (Nov.) 1935.
9. Scheffer,[7] Cole and Curtis.[8]

CUMULATIVE ACTION OF DIGITALIS GLUCOSIDES AND CARDIAC NECROSIS

The persistent action of digitalis suggested long ago an accumulation of the drug in the body. The selective action on the heart and blood vessels indicated possible selective distribution of the digitalis to these organs. Straub [1] developed evidence of such selective action of strophanthin in the frog ventricle. Later, however, Weese [2] showed that not more than 9 per cent of digitalis glucosides accumulate in the mammalian heart. The content of digitalis in the heart decreased as other organs, such as the kidney and liver, were added to a heart-lung system. Weese concluded that the distribution of digitalis was largely extracardial, a view supported by demonstration of a concentration of the drug in the liver and other viscera of digitalized birds, reported by Hanzlik and Wood.[3]

Textbooks, however, have continued to record the clinical impressions of cardiac accumulation and have supported these with the original experimental results

1. Straub: Biochem. Ztschr. **28**: 392, 1910.
2. Weese, H.: Arch. f. exper. Path. u. Pharmakol. **135**: 228, 1928; **141**: 329, 1929; **150**: 14, 1930; **172**: 699, 1933.
3. Hanzlik, P. J., and Wood, D. A.: J. Pharmacol. & Exper. Therap. **37**: 67 (Sept.) 1929.

of Hatcher,[4] who studied the cumulative action in cats by his method of determining the fractional fatal dose necessary to kill after variable periods of medication. Since the cause of death was cardiac, the close association of cardiac accumulation and fatal dose appeared natural and conclusive. The theory of this procedure postulated only the chemical fate of the drug. It failed to take into consideration such effects as sensitization, desensitization and injuries that might be caused by the drug, and the effects of these changes on successive doses of digitalis. This procedure has been questioned by German investigators, and the so-called cumulative action is shown to be essentially a reaction of the injured heart resulting from the digitalization.

For instance, Bauer[5] reports that digitalis and strophanthin cause typical necrotic changes in the hearts of cats treated with high doses of these drugs. The effects are of two kinds, reversible and irreversible, largely according to the result from the first dose. The outcome can be predicted in from two to four days after the first dose. If the heart is accelerated and its rhythm disturbed, the outlook is unfavorable because the second dose of digitalis for fatal effect will be small. But, if the heart action is normal, the second dose will be high. Atropinization does not alter the outcome. Strophanthin requires about 25 per cent higher doses than does digitoxin. The "cumulative" effects are to be looked for in the pathologic changes in the heart muscles, especially the papillary muscles and trabeculae. Dogs and rabbits do not show the "cumulative" actions and also do not show the necrotic changes in the heart.

The pathologic changes, which are described by Büchner,[6] consist of loss of nuclei from the cardiac muscle cells, leukocytic infiltration, cloudy swelling and degenerative processes—a picture of microscopic necrosis. Evidences of healing are strands of connective tissues, which replace the injured cardiac muscle. According to Büchner, the morphologic changes in the hearts of digitalized cats are not unlike those of clinical coronary disease. The necrotic changes of ischemia are suggested. Possibly they are the result of coronary contraction or of a direct action on the muscle cells, as digitalis is both a vasoconstrictor and an irritant. Whatever is the correct explanation, further tests by Weese and Kieckhoff,[7] with heart-lung preparations of digitalized cats, demonstrate that cardiac function is impaired. Provisionally, the German reports cast a doubt on the validity of the fractional fatal dose method of Hatcher for determining cumulative actions of digitalis and its allies.

Whether the reported functional and morphologic injuries in the cat heart occur in clinical digitalization is not known. Species differences are indicated by the apparently negative results with dogs and rabbits. Nevertheless, it has been asserted that clinical reactions to digitalis resemble the actions in cats. Spontaneous repair and reversibility of the cardiac processes suggest that permanent damage to a heart may not occur with ordinary therapeutic administrations, which are generally interrupted or periodic. Microscopic necrosis from the action of digitalis may be less serious than are the changes in an abnormal heart for which the digitalis is given. However, a pathologic or decompensated heart may be more readily injured by digitalis than is a normal heart. Actually, some clinicians feel that the wrong use of digitalis does little or no permanent good and may eventually do harm. These opinions are apparently not based on demonstrated pathologic changes in human hearts. Hence it would seem advisable to make clinical observations along these lines.

Current Comment

HORMONES AND NITROGEN METABOLISM

The internal secretion of the thyroid gland exerts a profound regulatory effect on metabolic processes. One of the most striking is the production of a distinct negative nitrogen balance. It has been observed, however, that the degree of negative balance is quite variable. As yet, a satisfactory explanation for the inconsistency has not been made. There are suggestions that the hormone of the adrenal cortex may likewise be involved in the maintenance of nitrogen balance. For example, in patients with Addison's disease a negative nitrogen balance exists, which becomes positive when adequate amounts of adrenal cortex extract are administered. A recent experimental study[1] adds further evidence to support the view of a relationship between adrenal cortical hormone, thyroxine and nitrogen metabolism. The nitrogen balance of adrenalectomized dogs was determined during control periods and periods during which either or both adrenal cortex extract and thyroxine were administered. A negative balance was sometimes observed in the animals that did not receive adrenal cortex extract or else received submaintenance doses; when thyroxine alone was given, consistent negative balances were found, as might be expected. The simultaneous administration of adrenal cortex extract with thyroxine, however, definitely lessened the degree of nitrogen loss. If sufficiently large doses were used, a positive balance sometimes could be obtained. Thus it appears that the amount of cortical hormone which is available is one of the factors that condition the amount of nitrogen catabolism induced by the hormone of the thyroid and that the cortical hormone exerts a protective action against the effect of thyroxine. This alleged relationship would afford another example of the antagonistic activity of the hormones in the regulation of body processes.

4. Hatcher, R. A., and Brody, J. G.: The Biological Standardization of Drugs, Am. J. Pharm. **82**: 360, 1910. Hatcher, R. A., and Bailey, H. C.: Tincture of Strophanthus and Strophanthin, J. A. M. A. **52**: 5 (Jan. 2) 1909. Hatcher, R. A., and Eggleston, Carey: The Emetic Action of the Digitalis Bodies, J. Pharmacol. & Exper. Therap. **4**: 113, 1912.

5. Bauer, H.: Arch. f. exper. Path. u. Pharmakol. **176**: 65, 74, 1934.

6. Büchner, F.: Arch. f. exper. Path. u. Pharmakol. **176**: 59, 1934.

7. Weese, H., and Kieckhoff, J.: Arch. f. exper. Path. u. Pharmakol. **176**: 274, 1934.

1. Koelsche, G. A., and Kendall, E. C.: The Relation of the Suprarenal Cortical Hormone to Nitrogen Metabolism in Experimental Hyperthyroidism, Am. J. Physiol. **112**: 335, (Oct.) 1935.

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Association News

RADIO BROADCASTS

The American Medical Association broadcasts over WEAF, the Red network instead of the Blue, as formerly, and certain additional stations of the National Broadcasting Company at 5 p. m. eastern standard time (4 o'clock central standard time, 3 o'clock mountain time, 2 o'clock Pacific time) each Tuesday, presenting a dramatized program with incidental music under the general theme of "Medical Emergencies and How They Are Met." The title of the program is "Your Health." The program is recognizable by a musical salutation through which the voice of the announcer offers the toast "Ladies and gentlemen, your health!" The theme of the program is repeated each week in the opening announcement, which informs the listener that the same medical knowledge and the same doctors that are mobilized for the meeting of grave medical emergencies are available in every community, day and night, for the promotion of the health of the people. Each program will include a brief talk dealing with the central theme of the individual broadcast.

Red Network.—The stations on the Red network of the National Broadcasting Company are WEAF, WEEI, WTIC, WJAR, WTAG, WCSH, KYW, WFBR, WRC, WGY, WBEN, WCAE, WTAM, WWJ, WMAQ, KSD, WHO, WOW, WDAF.

Pacific Network.—The stations on the Pacific network are KGO, KPO, KFI, KGW, KOMO, KHQ, KFSD, KTAR.

The next three programs are as follows:

February 18. Heart Disease, Morris Fishbein, M.D.
February 25. Crippled Children, W. W. Bauer, M.D.
March 3. Cancer, W. W. Bauer, M.D.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Plans for a Speakers' Bureau.—Plans are now being made to establish a speakers' bureau for the Arkansas Medical Society, in accordance with action taken at a recent meeting of the council. Dr. Darmon A. Rhinehart, Little Rock, chairman, public relations committee, is in charge of the arrangements, and it is believed that the bureau will be functioning before the next annual session in April. Societies wishing to use the facilities of the bureau are asked to communicate with Dr. Rhinehart.

Society News.—The Fifth Councilor District Medical Society was addressed at Eldorado, January 7, by Drs. George R. Livermore and J. H. Eugene Rosamond, Memphis, on diseases of the prostate and earache in children, respectively.——At a meeting of the Mississippi County Medical Society in Blytheville, January 7, Drs. Lemly L. Hubener, Dyess, discussed "The Choice of Obstetric Instruments and the Method of Application," and Floyd Webb, Blytheville, "Middle Ear Infection."——Dr. Charles R. Rountree, Oklahoma City, addressed the Miller County Medical Society recently on "Fractures In and Near the Elbow Joint."——The Benton County Medical Society was addressed, January 9, by Dr. Guy Hodges, Rogers, on "Bronchopneumonia in Childhood."

CALIFORNIA

Society News.—Dr. Stanley Cobb, Bullard professor of neuropathology, Harvard Medical School, Boston, discussed "Epilepsy and the Causes of Convulsions" at a joint meeting of the Los Angeles Society of Neurology and Psychiatry and the internal medicine section of the Los Angeles County Medical Society, February 10.

Food Poisoning from Imported Antipasto.—The California State Department of Health announces a recent outbreak of food poisoning traced to imported antipasto. The department states that this is the second outbreak of food poisoning attributed to this product within the last few years. An effort is now being made to determine whether the infected product has been widely distributed over the state.

COLORADO

Society News.—The Colorado Hospital Association will hold its annual meeting April 28-29 this year, instead of in the fall as in previous years.——A symposium on disorders of the parathyroid gland was presented before the Medical Society of the City and County of Denver, February 4, by Drs. Thaddeus Sears, William C. Black, Kenneth D. A. Allen, Wilfred S. Dennis, Roy P. Forbes and William W. Haggart.

Annual Registration Due Before March 1.—Every person licensed to practice any form of the healing art in Colorado is required by law to register annually before March 1 with the secretary-treasurer of the Board of Medical Examiners and to pay a fee of $2 if a resident of Colorado or $10 if a nonresident. Failure to pay this fee within the time stated automatically suspends the right of a licentiate to practice while delinquent. If he nevertheless continues to practice he is subject to the penalties provided by law for practicing medicine without a license. Failure to pay this fee for three consecutive years results in the automatic cancellation of a delinquent practitioner's license to practice.

DISTRICT OF COLUMBIA

Annual Graduate Clinic.—The fourth annual graduate clinic of George Washington University School of Medicine will be held at the University Hospital, February 29, with the following program:

Dr. Frederick A. Reuter, Analysis of Routine Examination of the External Genitalia.
Dr. Joseph Lawn Thompson, Unusual Case of Meningococcus Septicemia.
Drs. Paul F. Dickens and Charles S. White, Observations on Total Thyroidectomy for Congestive Heart Failure and Angina Pectoris.
Dr. Howard F. Kane, Obstetric Analgesia.
Dr. Walter Freeman, represented by Dr. Hyman D. Shapiro, Outpatient Treatment of General Paralysis of the Insane with Malaria.
Dr. Jacob Kotz, Treatment of Functional (Endocrine) Disorders in Females.
Dr. Daniel L. Borden, Emergency Use of Murphy Button.
Dr. Harry H. Donnally, Acute Purulent Pericarditis in Infancy.
Dr. Radford Brown, Endometriosis.
Dr. Paul S. Putzki, Carcinoma of the Rectum.
Dr. Harry A. Davis, Use of Fluids in the Treatment of Shock.
Dr. Raymond W. Murray, Treatment of Dyspituitarism.
Dr. Paul F. Dickens, Treatment of Nephritis.
Dr. William Leroy Dunn, Treatment of Angina Pectoris.
Dr. Howard F. Kane and staff, Use of Paraldehyde in Obstetrics.

GEORGIA

Society News.—Dr. Calvin B. Stewart presented a paper on "Cancer Prevention" before the Academy of Medicine, Atlanta, January 16; Dr. James J. Clark discussed "Interlobar Lesions and Their Correct Diagnosis," and Dr. Richard B. Wilson presented a case report of carcinomatosis of the meninges. All are from Atlanta.——Speakers before the Fulton County Medical Society, February 6, included Dr. Leila A. Daughtry-Denmark, Atlanta, on "A Study in Whooping Cough Immunization and Diagnosis."

Personal.—Dr. Charles W. Folsom, formerly health officer in Knox County, Ky., has been appointed to a similar position with the Walker-Catoosa County Health Department, succeeding Dr. Samuel P. Hall Jr., who resigned.——Dr. Charles A. Greer was recently reelected mayor of Oglethorpe for the twentieth term.——Dr. Robert Frank Cary, Monticello, has been elected health officer of Terrell County, with offices in Dawson.——Dr. Henry Grady Callison has been named health commissioner of Augusta and Dr. William A. Mulherin chairman of the board.

ILLINOIS

New Buildings for Manteno State Hospital.—As a part of an extensive building program at the Manteno State Hospital, Manteno, contracts have been let for twelve ward buildings, diagnostic building, hospital for the tuberculous, two hydrotherapy wards, mechanical building and two dormitories for employees. The total amount to be expended will be about $3,700,000, with contracts calling for completion of the work by December 15. Most of the buildings which were erected under this program last year at a cost of $1,900,000 are now occupied and include six ward buildings, hospital building, store building and laundry. A general kitchen was completed, as well as the installation of mechanical equipment. With the additions, the bed capacity of the hospital has been increased by 1,600.

Society News.—At a meeting of the Adams County Medical Society in Quincy, February 10, Dr. Frank Smithies, Chicago, spoke on ulcerative lesions of the intestine.——Dr. Porter P. Vinson, Rochester, Minn., discussed "The Newer Findings in Pulmonary Disease with the Use of the Bronchoscope" before the Peoria City Medical Society, February 4.——At a meeting of the St. Clair County Medical Society in Belleville, February 5, Dr. Charles H. Eyermann, St. Louis, discussed "Allergy in General Practice," and Dr. Rolland L. Green, Peoria, president-elect, state medical society, February 6, in East St. Louis, social aspects of medicine.——Dr. Joseph Brennemann, Chicago, addressed the Sangamon County Medical Society, February 6, in Springfield, on "Pneumonias of Childhood."——The Springfield Medical Club, Springfield, will be addressed March 17 by Dr. Anton J. Carlson, Chicago, on "The Control of the Endocrine Glands."

Chicago

Meeting on Industrial Medicine.—The Central States Society of Industrial Medicine and Surgery met jointly with the Chicago Medical Society, January 15. Speakers included:

Dr. John J. Moorhead, New York, Traumatic Surgery Trends.
Dr. George G. Davis, Problem of the Pneumoconioses in Industry.
Dr. Allan J. Hruby, Clinical Aspects of Pulmonary Fibrosis Produced by Dust Diseases.
Dr. Henry C. Sweany, Pathology of the Pneumoconioses.
Dr. Hollis E. Potter, Roentgenologic Visualization of Lung Fibrosis Produced by Silicosis and Other Dusty Occupations.
Daniel D. Carmell, assistant attorney general of Illinois, The Legal Status of Occupational Diseases in Illinois.
Dr. Philip H. Kreuscher, The Rôle of the Medical Department of the Illinois State Industrial Commission in Connection with Occupational Disease.

Society News.—The Chicago Medical Society will be addressed, February 19, by Dr. Wilburt C. Davison, dean, Duke University School of Medicine, Durham, N. C., on "Brucellosis." Dr. Williams McKim Marriott, dean, Washington University School of Medicine, St. Louis, will speak on "Hypoglycemic Reactions in Childhood," and Dr. Nathan B. Van Etten, New York, speaker, House of Delegates, American Medical Association, "Economic Problems of Interest to the Medical Profession." A symposium on syphilis was presented before the society, February 5, by Drs. Harold A. Rosenbaum, Oliver S. Ormsby and George W. Hall.——Dr. Owen H. Wangensteen, Minneapolis, discussed "Intestinal Obstruction" before the Englewood branch of the Chicago Medical Society, January 7.

INDIANA

Personal.—Dr. Sherman S. Frazier, Angola, has been appointed secretary of the Angola City Board of Health to succeed the late Dr. P. Norman Sutherland, who held the position for more than twenty-five years.——Dr. Alva L. Spinning, Covington, has been appointed health officer of Fountain County.

Society News.—Dr. William R. Cubbins, Chicago, discussed "Fractures of the Elbow and Knee Joints" before the Fort Wayne Medical Society, February 3.——Dr. Lindon Seed, Chicago, discussed hyperthyroidism before the Montgomery County Medical Society in Crawfordsville, January 30.——At a meeting of the Knox County Medical Society in Vincennes, January 21, Dr. Warren W. Hewins, Evansville, spoke on prostatic disease and transurethral prostatectomy.——Dr. Thurman B. Rice, Indianapolis, addressed the Jasper-Newton County Medical Society in Kentland, January 31, on "Health Fads."——Dr. Robert M. Moore, Indianapolis, addressed the Tippecanoe County Medical Society, February 11, in Lafayette, on diseases of the coronary arteries.——Dr. Henry F. Beckman, Indianapolis, discussed "Toxemia of Late Pregnancy" before the Northeastern Indiana Academy of Medicine, January 30.

IOWA

Personal.—Dr. Mark C. Wheelock, formerly on the staff of the state hospital at Cherokee, has been named assistant superintendent of the state hospital in Mount Pleasant.——Dr. Wayne J. Foster, Cedar Rapids, has been appointed to the board of control in athletics at the University of Iowa. Dr. Foster is a graduate of the State University of Iowa College of Medicine, Iowa City, and a former athlete.

Society News.—Dr. Edward A. Schumann, Philadelphia, discussed "Ectopic Pregnancy" before the Des Moines Academy of Medicine and the Polk County Medical Society, February 7.——The Linn County Medical Society will be addressed in Cedar Rapids, March 12, by Drs. William E. Brown on "Physiology of the Uterus in Labor"; Charles Sumner Day, "Pathology of the Uterus in Labor"; James Stuart McQuiston, "Movement Disorders and Various Types of Gaits," and Benjamin F. Wolverton, "Practical Application of Electrocardiography." All speakers are from Cedar Rapids.

KANSAS

New Medical Bureau.—The Medical Credit Service Bureau of the Sedgwick County Medical Society was opened, February 1, with Mr. Harry A. McGinley as manager. At present only members of the society will be entitled to make use of the bureau, although later the facilities may be extended to members of the Wichita Dental Society and local hospitals.

Society News.—The Wyandotte County Medical Society was addressed, February 4, by Drs. Harold V. Holter on "Treatment of Puerperal Sepsis" and Eldon S. Miller, "Carotenemia." Dr. Harry R. Wahl conducted a pathologic conference. Speakers, January 20, were Drs. Maurice A. Walker and Harold L. Gainey on "Surgery and Diabetes" and "Pelvic Inflammation and Sedimentation" respectively. A pathologic conference was also conducted by Dr. Wahl.——At a meeting of the Saline County Medical Society and the Golden Belt Medical Society in Salina, January 9, speakers were Drs. Maurice Snyder, Salina, on "Simple Achlorhydric Anemia"; Lucien R. Pyle, Topeka, "Common Pathological Conditions of Pregnancy"; Charles C. Dennie, Kansas City, "Heat Treatment in Syphilis," and Harry L. Smith, Rochester, Minn., "Syncope of Patients with Hypersensitive Carotid Reflexes; Syncopal Attacks Reproduced by Pressure on the Carotid Sinus."

KENTUCKY

Outbreak of Meningitis.—Schools in five districts of Harlan County were closed by health authorities, February 7, when several deaths and more than twenty cases were reported in an outbreak of meningitis. Cumberland, Lynch, Benham, Wallins and Shields were placed under quarantine. As precautionary measures, health officers posted rules prohibiting more than three persons in stores at a time, closed all theaters and canceled all public gatherings, the Chicago *Tribune* reported.

Bills Introduced.—H. 487 proposes to enact a new pharmacy practice act. Among other things, the bill proposes to prohibit the sale, except on the prescription of a licensed physician, dentist or veterinarian, of hormones (synthetic or otherwise), barbital, sulfonethylmethane (trional), sulfonmethane (sulfonal), diethylsulfon, diethylmethane (tetronal), carbromal, paraldehyde, chloral or chloral hydrate, chlorbutanol, all serums and antitoxins, and the following emmenagogues or abortives: tansy, pennyroyal, rue, savin, ergot and cotton root. H. 535 proposes to make incurable insanity on the part of either spouse a ground for divorce. H. 574 proposes to enact a new pharmacy practice act. Among other things, the bill proposes to prohibit the sale, except on the prescription of a legally qualified physician, of tansy, pennyroyal, rue, savin, ergot or cotton root.

MARYLAND

Dr. McCollum Awarded Medal.—Elmer V. McCollum, Ph.D., professor of biochemistry and head of the department, Johns Hopkins University School of Hygiene and Public Health, Baltimore, has been presented with the Callahan Memorial Award by the Ohio State Dental Society. The award is a gold medal given each year to a person "who has made a contribution to dental science which is of very exceptional value." Dr. McCollum's research has dealt principally with nutrition.

Cancer Clinics.—A series of clinics on cancer, planned by the Medical and Chirurgical Faculty of Maryland, opened at the University Hospital, Baltimore, January 15. The clinics, which are designed to acquaint practicing physicians with the latest developments in the prevention and diagnosis of cancer, will be offered at the City Hosptal, March 10, on surgical and radiation treatment of cancer; April 29, in conjunction with the annual meeting of the faculty, on the cancer problem; May 21 at Johns Hopkins Hospital on surgical pathology of cancer. A clinic was held in Salisbury, February 5, and one is planned for Cumberland, April 3.

MASSACHUSETTS

New Health Commissioner for Boston.—Dr. William Basil Keeler, medical inspector for the South Boston health unit, has been appointed health commissioner of Boston, succeeding the late Dr. Francis X. Mahoney. Dr. Keeler graduated from Tufts College Medical School in 1903. According to the *New England Journal of Medicine*, Dr. Keeler was assistant to Dr. Charles F. Wilinsky, deputy commissioner of health, with the assignment as medical inspector for the South Boston health unit.

Psychiatric Awards.—The New England Society of Psychiatry at its next spring meeting will make two awards, one of $50 and one of $25, to the writers of the best papers completed or published during the calendar year 1935 embodying

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research in psychiatry by a younger worker. Physicians, psychologists, social workers or others are eligible and membership in the society is not a requisite. Writers who have once received an award are not again eligible. Seasoned writers, senior physicians or heads of departments in which there are junior workers, while not inevitably excluded, will not generally be regarded as eligible for the awards. The work on which the papers are based should preferably have been done in New England or by workers now living in New England. Copies of articles or marked copies of journals in which the articles appeared should be sent before March 1 to the secretary of the society, Dr. Harlan L. Paine, North Grafton.

Society News.—Clarence W. Muehlberger, Ph.D., Chicago, gave a lecture at Harvard Medical School, February 6, on "Some Newer Technics in Medicolegal Investigation."——At the annual meeting of the New England Ophthalmological Society, January 21, Dr. William D. Rowland discussed "Simple Technic for Plotting Diplopia," and Dr. Francis Heed Adler, Philadelphia, presented a paper entitled "Interpretation of the Different Forms of Tuberculosis of the Uveal Tract."——Dr. L. Emmet Holt Jr., associate professor of pediatrics, Johns Hopkins University School of Medicine, Baltimore, addressed the William Harvey Society at Tufts Medical School, February 13, on "Significance of Fats in Nutrition." Dr. Hiram Houston Merritt addressed the society, January 10, on "Syphilis of the Nervous System."——Edgar Allen, Ph.D., New Haven, Conn., discussed "Reactions to Ovarian Hormones" before the Harvard Medical Society, January 28, in Boston.

Dr. Hunt to Retire from Harvard.—The retirement of Dr. Reid Hunt, since 1913 professor of pharmacology at Harvard Medical School, Boston, has been announced, effective in September. Dr. Hunt is 65 years of age. He graduated from the University of Maryland School of Medicine in 1896, and after two years as tutor in physiology at the College of Physicians and Surgeons (Columbia), New York, served at Johns Hopkins University School of Medicine until 1903 as associate and as associate professor of pharmacology. He was chief of the division and professor of pharmacology of the U. S. Public Health Service from 1904 until 1913. In 1923 he was visiting professor to Pekin-Union Medical College and from 1920 to 1930 president of the U. S. Pharmacopeial Convention. He was chairman of the Section on Pharmacology and Therapeutics of the American Medical Association in 1908-1909, a member of the House of Delegates in 1911-1912 and has been a member of the Council on Pharmacy and Chemistry of the Association since its inception in 1905. He succeeded Dr. George H. Simmons as chairman of the Council in 1927. His investigations have been of the first order and have found ready recognition both in America and in Europe, and he has contributed much to the literature on his specialty. Dr. Hunt's plans for the future were not announced.

MICHIGAN

Industrial Hygiene Laboratories. — The Industrial Hygiene Laboratories of the Chrysler Corporation, Detroit, began operation, January 1, under the direction of Dr. Stuart F. Meek, Detroit, as industrial hygienist and Gordon C. Harrold as chemist. These laboratories, located at the Dodge main plant of the Chrysler Corporation, are devoted to the study of occupational diseases and their sources, together with other agencies and conditions of work leading to industrial health hazards. They have been planned under the direction of Dr. Carey P. McCord, Cincinnati, who remains associated in the capacity of consultant.

Personal.—Dr. Irmel W. Brown has been named director of the health department of Kalamazoo, succeeding Dr. John L. Lavan, resigned.——An enlarged photograph of an oil painting of the late Dr. Charles Godwin Jennings has been presented to the Wayne County Medical Society by associates and friends of Dr. Jennings.——Dr. William H. Pickett, Saginaw, has resigned as health officer of Saginaw County to accept a similar position in Florida.——Dr. Howard H. Cummings has been appointed assistant director of the postgraduate department, University of Michigan Medical School, Ann Arbor; he will serve on a part time basis, it is reported.

Society News.—Dr. Henry W. Meyerding, Rochester, Minn., addressed the Gogebic County Medical Society recently on "Volkmann's Ischemic Contracture as a Complication of Fractures of the Elbow."——The Wayne County Medical Society was addressed, December 16, in Detroit, by Mr. John D. Dingell, Detroit, member of the U. S. House of Representatives, and Dr. Roscoe L. Sensenich, South Bend, Ind., on the political and social aspects of the practice of medicine. The society was addressed, January 6, by Dr. Walter M. Simpson, Dayton, Ohio, on "Artificial Fever Therapy" and Mr. Charles F. Kettering, director, General Motors Research Laboratories, "The Engineering Aspects of the Apparatus Used for Artificial Fever Production."

MINNESOTA

The Jackson Lecture.—The third annual Clarence Martin Jackson Lecture was given by Dr. Russell L. Haden, Cleveland, February 5, at the University of Minnesota School of Medicine. His subject was "The Human Red Blood Cell." The Jackson lecture was established by Phi Beta Pi Medical Fraternity in honor of Dr. Jackson, who is head of the department of anatomy at the medical school.

Personal.—Mr. R. R. Rosell, formerly field representative of the National Food Bureau, has been appointed assistant to the secretary of the Minnesota State Medical Association, Dr. Edward A. Meyerding, St. Paul. Mr. Rosell will keep in touch with negotiations in all parts of the state with county commissioners and relief officers in the conduct of medical care for the indigent and unemployed.——Dr. James C. Masson has been appointed chief of the surgical staff of the Mayo Clinic, succeeding the late Dr. Edward Starr Judd.

MISSISSIPPI

Bills Introduced.—S. 105 proposes to create a state board of cosmetic therapy or beauty culture and to regulate the practice of cosmetic therapy or beauty culture. Among other things, such practitioners are to be permitted to remove superfluous hair. S. 110 proposes to enact a podiatry practice act and to authorize the state board of medical examiners to examine and license persons applying for licenses to practice podiatry. Such practitioners are to be authorized to diagnose and treat medically, mechanically, electrically, and surgically minor ailments of the human foot, such as corns, calluses, warts, ingrowing and abnormal nails, bunions and similar conditions, and they are to be permitted to use such mechanical appliances as may be deemed necessary for the relief or cure of such ailments, except that they are to be denied the right to amputate the foot or toes, or to use anesthetics other than local. They are specifically prohibited from treating diseases and conditions of the feet produced by kidney, heart or other systemic diseases, unless they do so under the direction of a regularly licensed physician.

MISSOURI

Society Favors Abolishing Marine Hospital.—In a resolution adopted January 28 the St. Louis Medical Society expressed its opposition to the expenditure of funds for the rebuilding of the local marine hospital and recommended its abolishment. The resolution explained that since the policy is to build marine hospitals where private hospital care is less economical, the society believes private hospitals in St. Louis could care for patients receiving treatment by the U. S. Public Health Service at less cost than a government hospital.

Cancer Control Meetings.—The Holt County Medical Society and the Mound City chapter of the Twentieth Century Club sponsored a cancer control meeting at Mound City, January 7. Speakers included Drs. Henry J. Ravold and Harold E. Petersen. The St. Louis County Medical Society held a similar meeting in Clayton, January 22. Dr. Richard S. Weiss, St. Louis, discussed "Precancerous Dermatosis" and Dr. Louis H. Jorstad, St. Louis, "Cancer of the Lip and Buccal Cavity, Prevention and Therapy." The cancer committee of the state medical association furnished the speakers for these meetings.

NEW YORK

Bills Introduced.—S. 829 proposes to grant to charitable hospitals and to city and municipal hospitals, treating persons injured through the negligence of others, liens on all rights of actions, claims, judgments or compromises accruing to injured persons by reason of their injuries. S. 764, to amend the law authorizing the formation of nonprofit hospital service corporations to render hospital services to their subscribers or members and to exempt such corporations from the provisions of the insurance laws, proposes to extend the provisions of that law to a "nonprofit service indemnifying corporation for the purpose of establishing, maintaining and operating a nonprofit service plan whereby policy holders shall be indemnified for amounts paid out or agreed to be paid out by them for medical and surgical care and treatment, nursing care and hospital care." S. 765 and A. 920 propose to authorize hospitals, supported in whole or in part from public funds or exempt from taxation, to employ physicians under a contract or salary arrangement for the treatment and care of patients who are a public charge. In all other cases, the bill proposes, medical diagnosis and/or

treatment must be rendered to patients independently of other hospital charges and under contractual relationship between the patient and the physician. A. 864 and A. 865 propose to establish a board of chiropractic examiners and to regulate the practice of chiropractic, defined as "the adjusting by hand only of the articulations of the human vertebral column where misalignment or subluxations appear," and excluding "operative surgery, prescription or use of drugs or medicine, or the practice of obstetrics, except that the X-ray may be used solely for purposes of examination."

Pneumonia Control Program.—A special program for the control of pneumonia was inaugurated January 1 by the state department of health in cooperation with the Medical Society of the State of New York, the State Association of Public Health Laboratories, the Commonwealth Fund and the Metropolitan Life Insurance Company. The division of laboratories and research distributed Dec. 30, 1935, a supply of concentrated type I antipneumococcus serum to seventy supply stations throughout the state. Under the direction of Dr. Edward S. Rogers, formerly of the staff of Massachusetts General Hospital, a special unit has been added to the division of communicable diseases which will devote its efforts to cooperation with the medical profession and evaluation of the results of the campaign. Facilities for typing sputum by the rapid Neufeld method are now available in seventy-seven approved laboratories throughout the state and it is planned to extend this service to place typing facilities within reasonable access of physicians in all parts of the state. The state medical society through its committee on public health and medical education, of which Dr. Thomas P. Farmer, Syracuse, is chairman, is sponsoring special meetings and conferences of physicians devoted to the various aspects of pneumonia. Dr. Russell L. Cecil, New York, is chairman of a subcommittee on pneumonia directly in charge of this work. In addition, a number of official and volunteer nursing organizations are considering ways to provide adequate nursing service. As part of the campaign, Governor Lehmann issued a proclamation January 15 urging citizens to join in an effort to reduce the number of pneumonia cases and deaths "by disseminating knowledge of prevention through simple health rules and prompt action in securing early diagnosis and treatment where pneumonia is suspected."

New York City

Personal.—Dr. Isidore H. Goldberger was not elected president of the Bronx County Medical Society, as noted in THE JOURNAL, January 4, page 49, but of another society with a similar name.

Fifth Harvey Lecture.—Dr. John Farquhar Fulton, Sterling professor of physiology, Yale University, New Haven, will deliver the fifth Harvey Lecture at the Academy of Medicine, February 20. His subject will be "Interrelation of Cerebrum and Cerebellum in the Regulation of Somatic and Automatic Functions."

Tuberculosis Sanatorium Conference.—A clinical session on chronic pulmonary diseases was held at Cornell University Medical College, February 5, by the Tuberculosis Sanatorium Conference of Metropolitan New York, under the auspices of the New York Tuberculosis and Health Association. Speakers, all of the staff of Seaview Hospital, Staten Island, included:

Drs. David Ulmar and Oscar Auerbach, Clinical Course and Postmortem Examination (presentation of cases).
Drs. David Reisner and Iehoussiel C. Tcherthoff, Cystic Disease of the Lungs.
Dr. Henry K. Taylor, X-Ray Diagnosis of Pathology in the Larynx and Trachea.
Drs. George G. Ornstein and Pol N. Coryllos, Management of Bilateral Pulmonary Tuberculosis.

Dr. Coryllos also spoke on "Closed Pneumolysis Indications and Management."

Alumni Day.—Alumni Day of the New York University College of Medicine will be held February 22. The program will consist of papers and laboratory demonstrations, exhibits and ward rounds in Bellevue Hospital. Luncheon will be served at the college and the annual alumni dinner will be at the Park Central Hotel. Dr. John H. Wyckoff, dean, will give the address of welcome, and Dr. Walter Lester Carr, president of the alumni association, opening remarks. Others on the program will include:

Dr. Irving Graef, Change of Structure in the Kidney as Related to Certain Changes in Function.
Dr. George B. Wallace, Action of the Mercurial Diuretics.
Dr. Meredith F. Campbell, Pyuria in Children.
Dr. Albert A. Epstein, Nephrosis.
Dr. Edward B. Gressey, Eye Changes in Nephritis.
Dr. Samuel Standard, Salt and Water Metabolism.
Dr. Homer W. Smith, The Biology of Excretion.
Dr. William Goldring, Urinary Findings in Renal Disease.

Dr. Isaac Seth Hirsch and Robert Chambers, Ph.D., will participate in the demonstrations.

Record Low Death Rate.—New York's mortality rate in 1935 was 9.9 per thousand of population, the lowest ever registered, according to the annual report of the health commissioner, Dr. John L. Rice. Four other death rates reported were said to be the lowest the city has had: infant mortality, 47.6 per thousand births; diphtheria, 0.9 per hundred thousand of population; typhoid, 0.5 per hundred thousand, and pulmonary tuberculosis, 52.2 per hundred thousand. The total number of deaths was 75,057. There were only 66 deaths from diphtheria in comparison with 210 in 1932; 37 from typhoid, compared with 64 in 1932, and 3,969 from tuberculosis, compared with 3,997 in 1932. Deaths from pneumonia have dropped from 9,245 in 1931 to 6,381 in 1935; appendicitis from 1,149 in 1933 to 921 in 1935. Suicides decreased from 1,595 in 1932, the highest point in the last ten years, to 1,147 last year. There were 2,134 cases of poliomyelitis in 1935, about half the number in the epidemic of 1931 and less than one fourth the number in the epidemic of 1916; the mortality rate was less than 5 per cent, much lower than in previous outbreaks. The birth rate was 13.2 per thousand of population, the lowest birth rate ever recorded in the city.

OHIO

Lectures on the Filtrable Viruses.—Dr. Thomas M. Rivers of the Rockefeller Institute for Medical Research, New York, will deliver the Rachford Memorial Lectures at the University of Cincinnati College of Medicine, February 27-28. His subject will be "The Filtrable Viruses."

Society News.—Dr. Edward William Alton Ochsner, New Orleans, addressed the Academy of Medicine of Cincinnati, February 4, on "Treatment of Ileus Occurring Postoperatively and in Association with Peritonitis." Dr. John J. Shea, Memphis, Tenn., addressed a joint meeting with the Cincinnati Dental Society, February 11, on "Management of Fractures of the Superior Maxilla Extending Into the Alveolar Process."

OKLAHOMA

Society News.—Speakers before the Tulsa County Medical Society, January 13, were Drs. E. Rankin Denny, on "Diabetic Coma"; Gregory A. Wall, "Oblique Inguinal Hernia," and David V. Hudson, "Results in the Treatment of Syphilis in the Clinic." Dr. Leon H. Stuart addressed the society, January 27, on "Roentgen-Ray Treatment of Infections."

PENNSYLVANIA

Personal.—At a meeting of the Lawrence County Medical Society in New Castle, February 6, Dr. John P. Griffith, Pittsburgh, discussed differential diagnosis of acute conditions of the abdomen.——Dr. James L. Gilmore, Pittsburgh, addressed the Fayette County Medical Society at Uniontown, February 6, on "Diagnosis and Treatment of Obstetric Problems."——Dr. Hamlin C. Eaton has resigned as clinical director of the Warren State Hospital, Warren, to accept a similar position at the Polk State School, Polk. Dr. Eaton was secretary of the Warren County Medical Society for seven years.

Philadelphia

Changes in City Health Department.—Dr. William C. Hunsicker has been appointed director of health of Philadelphia, and Dr. Alfred F. Allman, assistant director. Dr. Hunsicker graduated from Hahnemann in 1895 and had been a member of the state senate for a number of years, resigning to accept the new position. Dr. Allman, a graduate of Jefferson Medical College in 1895, had previously been associated with the health department and at one time served on the city council. Dr. Martha Tracy, dean of the Woman's Medical College of Pennsylvania, and Dr. Joseph C. Doane, medical director of the Jewish Hospital, have been appointed to the board of health to succeed Dr. James M. Anders, who resigned, and the late Dr. Ellwood R. Kirby.

"Professional Day" Celebrated.—Dr. William B. Castle, associate professor of medicine, Harvard Medical School, Boston, received the Procter Award and new research laboratories were dedicated at the Philadelphia College of Pharmacy and Science as features of "Professional Day," January 31. Dr. Castle made an address on "New Developments in Products for the Treatment of Pernicious Anemia"; E. Fullerton Cook, Ph.M., chairman of the U. S. P. Committee of Revision, discussed the new Pharmacopeia; Adley B. Nichols, B.Sc., secretary of the Committee of Revision of the National Formulary, discussed the Formulary, and Dr. Horatio C. Wood Jr., professor of pharmacology at the school, the use of official medicines in medical practice. The new laboratories are a memorial to Prof. Joseph Price Remington, presented to the school by Mr. Josiah K. Lilly and Mr. Eli Lilly, Indianapolis,

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graduates of 1882 and 1907 respectively. An afternoon program was presented with the following members of the faculty as speakers: Arthur Osol, B.Sc., on "Newer Chemical Aspects of the Pharmacopeia"; Louis Gershenfeld, P.D., "Official Biological Products and the Official Preparations for Parenteral Administration"; Marin S. Dunn, Ph.D., "Official Requirements for Vegetable and Animal Drugs"; Arno Viehoever, F.C., "Biological Methods for Standardizing Cathartics," and Ivor Griffith, Ph.M., "The Pharmacy of the U. S. Pharmacopeia."

SOUTH CAROLINA

Bills Introduced.—H. 1500 proposes to require, as a condition precedent to the issuance of a license to wed, that both parties to the proposed marriage present a certificate from a physician that they are physically and mentally fit to contract matrimony. S. 1112 proposes to require the board of regents for the state hospital at Columbia to establish a department for the restraint and care of inebriates, defined to be persons habitually so addicted to alcoholic drinks or the use of narcotic drugs as to be proper subjects for restraint, care and treatment. Probate judges are to be authorized to commit, on petition of interested persons, persons whom they determine to be inebriates to this department for restraint and treatment. S. 1119 proposes to authorize the city council of any municipal corporation of more than 5,000 and less than 10,000 inhabitants, which has acquired, constructed or caused to be constructed a hospital, to establish a city hospital commission to operate and manage the hospital.

TENNESSEE

University News.—Dr. Henry E. Sigerist, William H. Welch professor of the history of medicine, Johns Hopkins University School of Medicine, Baltimore, lectured at Vanderbilt University School of Medicine, Nashville, in December on "Medicine in the Renaissance," "Medical Organization in Europe" and "Life and Work of Louis Pasteur and Robert Koch."

Society News.—Dr. George D. Boone, Paris, among others, addressed the Carroll, Henry and Weakley Counties Medical Society in December on "Collapse Therapy in Tuberculosis."——Drs. Nicholas S. Walker, Dyersburg, and Richard C. Newkirk, Tiptonville, among others, addressed the Dyer, Lake and Crockett Counties Medical Society, January 1, on "Pernicious Vomiting of Pregnancy" and "Rachitic Pelvis" respectively.——At a meeting of the Robertson County Medical Society in La Follette in December Drs. William P. Stone and Ernest W. Adair, Springfield, spoke on blood dyscrasias and on treatment of varicose veins.——The Memphis Society of Ophthalmology and Otolaryngology held its annual "Clinical Day" in December in honor of Dr. Edward C. Ellett. The program consisted of demonstrations of operative procedures followed by a banquet at the university club in the evening, at which Dr. Ellett made an address.

VIRGINIA

Bills Introduced.—S. 151 and H. 234, to amend the law granting liens to hospitals treating persons injured through the negligence of other persons, on all rights of action, claims, judgments and compromises accruing to the injured persons by reason of their injuries, proposes to grant these liens also to physicians and nurses.

WEST VIRGINIA

State Laboratory Limits Free Work.—The hygienic laboratory of the West Virginia Department of Health will henceforth limit its free work under a ruling of the Public Health Council, effective January 1, to charity cases properly certified by both patient and physician, work of health agencies and state institutions, and work of private physicians of a public health nature. No specimen will be accepted for diagnosis except from a physician, and no reports will be given out except to physicians. It is believed that this policy of turning away from the state laboratory to private laboratories all specimens for which payment should be made will stimulate the establishment of more private laboratories meeting standard requirements. Specimens that should be sent to private laboratories include blood specimens for the purpose of obtaining licenses, as in the case of barbers and beauticians, who are required by law to present the report of a blood test annually. The only exception to this is made when the applicant and the examining physician sign a statement that the former is unable to pay for the laboratory examination. Since the ruling states that any specimen is considered of private nature when a fee is charged for laboratory diagnosis, specimens from patients who are able to pay are to be sent to private laboratories, except when they are for the specific purpose of diagnosis, treatment and control of communicable diseases that affect the health of the public.

PHILIPPINE ISLANDS

Society News.—A League of Medical Associations of the Philippines was recently formed by the Philippine Islands Medical Association, the Colegio Medico-Farmaceutico de Filipinas, the Philippine Federation of Private Practitioners and the Philippine Public Health Association. Dr. Jose Fabella, commissioner of health and welfare, was elected chairman of the council of the league and Dr. Antonio S. Fernando, secretary. The league planned a national congress to consider health problems of the new commonwealth to take place early this year.——At a recent meeting of the Manila Medical Society speakers were Drs. Alfredo Pio de Roda, on "Action of Bacteriophage in Various Types of Staphylococci" and Eusebio Y. Garcia, on "Possibility of Predetermination and Control of Sex in Man by Electrical Methods."

GENERAL

Heart Journal Becomes Monthly Publication.—Beginning with the January issue, the *American Heart Journal* will be published monthly instead of bimonthly as heretofore. The announcement was made on the tenth anniversary of the publication of the journal.

Orthopedic Examination.—The next examination of the American Board of Orthopaedic Surgery will be held at Kansas City, May 11. Applications to take the examination should be filed with the secretary, Dr. Fremont A. Chandler, 180 North Michigan Avenue, Chicago, on or before April 1.

Physical Therapy Meetings.—The fifteenth annual scientific and clinical session of the American Congress of Physical Therapy will be held at the Waldorf-Astoria, New York, September 7-11. The midwestern section will hold its meeting at the Mayo Clinic, Rochester, Minn., March 4-5, and the southern section in New Orleans, March 23.

Society News.—The twenty-second annual observance of National Negro Health Week, sponsored by the U. S. Public Health Service, will be March 29 to April 5. The special objective for 1936 is "The Child and the School as Factors in Community Health."——The American Laryngological, Rhinological and Otological Society will hold its annual meeting in Denver, May 18-20.

News of Epidemics.—Two deaths from meningitis occurred in January at the Soldiers' Home Hospital, Sandusky, Ohio. A case in Topeka, Lawrence County, Miss., caused the county health officer to quarantine the community, it was reported January 25. A boarding house in Caretta, W. Va., was placed under quarantine, January 10, after an inmate had become ill of meningitis. Nineteen cases and five deaths were reported in New York City for the week ended January 25.——Wellsville, N. Y., was placed under quarantine in January after an outbreak of scarlet fever involving thirty-six cases and two deaths up to January 13. Schools were closed in two communities in North Union township in Pennsylvania the week of January 13 because of an epidemic of scarlet fever; eighteen cases were reported at that time.

Medical Bills in Congress.—*Change in Status:* H. R. 10919 has been reported to the House, making appropriations for the Treasury and Post Office Departments for the fiscal year ending June 30, 1937. For the Bureau of Narcotics, an appropriation of $1,275,000 is proposed. For the United States Public Health Service, the following appropriations, among others, are proposed: $8,000,000 to assist states, counties, health districts and other political subdivisions of the states in establishing and maintaining adequate public health services, including the training of personnel for state and local health work; $1,155,160 for investigations of diseases and sanitation; $64,000 for maintaining the National Institute of Health; $5,870,000 for the pay of personnel and maintenance of hospitals; $663,220 for the Division of Mental Hygiene, including the maintenance and operation of the Narcotic Farm, Lexington, Ky. The bill proposes that on and after July 1, 1936, the Narcotic Farm at Lexington, Ky., shall be known as the United States Public Health Service Hospital, Lexington, Ky. *Bills Introduced:* H. R. 10547, introduced by Representative Carmichael, Alabama, proposes to increase the lump-sum payment made under the federal employees' compensation act for death or permanent total or permanent partial disability suffered prior to Feb. 12, 1927. H. R. 10851, introduced by Representative Mahon, Texas,

proposes to authorize $1,050,000 to erect a 300 bed hospital in west Texas for veterans. H. R. 10933, introduced by Representative Stefan, Nebraska, and H. R. 10984, introduced by Representative Dirksen, Illinois, propose to make it unlawful to sell certain spirits containing alcohol produced from materials other than cereal grains.

FOREIGN

Society News.—The ninth French Congress of Stomatology will be held in Paris, October 5-10, under the presidency of Dr. A. Pont, Lyons. Information may be obtained from the secretary general, Dr. M. Dechaume, 182 rue de Rivoli, Paris. ——Dr. M. E. Binet, Vichy, France, is in the United States to invite physicians to attend an International Congress on Hepatic Deficiency, to be held in Vichy, Sept. 16-18, 1937, under the presidency of Prof. Maurice Loeper, professor of clinical medicine, University of Paris.——The International Congress for Experimental Cytology will be held in Copenhagen, probably during August. Members and others who may be interested are requested to submit to the committee suggestions for subjects to be dealt with in symposiums. Those who have preferences as to the exact date are asked to communicate immediately with Dr. Harald J. C. Okkels, University of Copenhagen, secretary of the local committee.——The seventh International Genetics Congress will be held in Moscow in 1937; definite dates are yet to be selected.——The Sixth International Congress of Physical Medicine will meet in London, May 12-16. The congress has been divided into six sections: kinesitherapy, physical education, hydrotherapy and climatotherapy, electrotherapy, actinotherapy, radiotherapy and radium therapy. Subjects for discussion are in three groups, according to an announcement: physiologic and biologic study of physical agents, clinical indications for physical treatment and benefits and proper use of exercise in the healthy, and a comparative inquiry into the teaching of physical medicine in different countries. The secretary is Dr. Albert Eidinow, 4 Upper Wimpole Street, London, W. 1.——The one hundred and fourth annual meeting of the British Medical Association will be held at Oxford, July 17-24, under the presidency of Sir James W. Barrett, Melbourne, Australia.

Government Services

Announcement of Wellcome Prize for 1936

The Wellcome Prize will be awarded this year for the best paper on the subject "Importance of Coordinating the Military and Naval Medical Service with the Civilian Medical Profession." The prize is awarded by the Association of Military Surgeons of the United States.

Dr. DeWitt Appointed Assistant to Surgeon General

Col. Wallace DeWitt has been appointed assistant to the surgeon general of the U. S. Army, Major Gen. Charles R. Reynolds, with the rank of brigadier general, succeeding Brig. Gen. Matthew Delaney, who retired November 30. Colonel DeWitt is 57 years of age and a graduate of the University of Pennsylvania School of Medicine, class of 1900. The following year he became an assistant surgeon in the U. S. Army, advancing through the grades until 1927, when he was promoted to colonel in the regular army. He has been stationed at various posts through the United States and the Philippine Islands in various capacities, while his recent years have been spent as commanding officer of the Station Hospital, Fort Sam Houston, from 1921 to 1927, and of the Letterman General Hospital, 1927-1931. When relieved of this duty he became professor of military hygiene and post surgeon at the U. S. Military Academy, West Point, N. Y. He was assigned to the Army Medical Center in Washington, July 9, 1935.

Tuberculosis in Government Dairy Herd

An outbreak of tuberculosis in a herd of dairy cattle at the federal experiment station at Beltsville, Md., is reported by the Department of Agriculture. Eighty-two reactors to the tuberculin test and eleven "suspects" were revealed in a test made January 16. In the last previous test in October, one reactor appeared. In accordance with the policy of the department, the affected animals are being slaughtered and subjected to postmortem examination. Officials were at a loss to explain the sudden and extensive outbreak; a study is now being made to determine whether a virulent strain of the bovine organism gained access to feed or water. The herd has been in an accredited status for eighteen years and has been maintained almost entirely by replacements raised on the farm. No danger to other herds is involved, the department announced, since all cattle that have outlived their usefulness for experimentation are slaughtered. None are disposed of for dairy or breeding purposes.

Annual Report of Veterans' Administration

During the fiscal year ended June 30, 1935, the Veterans' Administration hospitalized 153,018 patients, of whom 42,984 remained in hospitals at the end of the year, an increase of 7 per cent over the previous year. Of the number still hospitalized, 55 per cent were being treated for neuropsychiatric diseases, 12 per cent for tuberculosis and 33 per cent for general medical and surgical conditions. There were 106,897 admissions, about 88 per cent of which were for non-service-connected disabilities. This number is an increase of 67 per cent over 1934 but is 28 per cent less than the peak of 148,662 in 1932. Of the admissions, 10,387 were for observation or treatment of tuberculosis, 7,539 for psychotic or mental diseases, 9,680 for other neurologic disorders and 79,291 for general medical and surgical conditions.

Deaths in hospitals totaled 7,253, or 7 per cent of the discharges, which amounted to 102,473. The previous year there were 5,334, which were 9 per cent of the discharges. Of the deaths, 4,340, or 59.84 per cent, occurred among patients under treatment for general diseases; 1,885, or 25.57 per cent, for pulmonary tuberculosis, and 1,058, or 14.59 per cent, for neuropsychiatric diseases.

Since March 1919, when hospital facilities were first authorized for veterans of the World War, there have been 1,448,421 admissions to hospitals, the administration reported. Since June 1924, when hospitalization was first authorized for all veterans without regard to the origin of their disabilities, 677,394, or 66 per cent of all admissions, have been for disabilities not connected with the service.

The administration reported 9,323 veterans under domiciliary care June 30, 1935; of this number 80 per cent were veterans of the World War with an average age of 43. During the year there were 8,656 admissions for domiciliary care, 85 per cent of them for non-service-connected disabilities. From these facilities 10,612 veterans were discharged after an average of six and a half months of domiciliary care.

At the end of the year under report the Veterans' Administration was operating hospital facilities at eighty locations in forty-three states, with a total of 44,793 beds; there were 20,073 beds available for domiciliary care, a decrease of 3,474 from the number of the previous year. Since the end of the fiscal year, Congress has appropriated $21,250,000 for 12,116 more beds to be available within three years. This addition will make a total of 55,858 beds in government facilities for hospitalization of veterans, not including 21,216 for domiciliary care. In addition, the administrator of veterans' affairs was authorized to submit estimates for the following new construction: 500 bed neuropsychiatric hospital in Tennessee or Alabama; 350 bed general hospital in or near Detroit; 100 bed general hospital near White River Junction, Vt., and a treatment station of twenty-five beds with space for a regional office at Reno, Nev.

Actual net disbursements for all purposes for the activities under the jurisdiction of the administration amounted to $618,522,341.50.

The report lays emphasis on opportunities extended to the medical personnel for training and advancement in the specialties of medicine. Graduate courses have been provided since 1928 at the facility at Washington, D. C., and until recently at Palo Alto, Calif. In addition, graduate study at civilian medical centers has been authorized, 455 physicians having had the benefit of this study. Special courses in pathology, roentgenology, operative surgery, urology, electrocardiography and other subjects have been given at the facilities. During the fiscal year 1935 an allergy clinic was established at Aspinwall, Pa., which provides instruction for physicians and a laboratory for the preparation of allergens. At Hines, Ill., a cancer service of 255 beds is maintained, with equipment for research and treatment including 3 Gm. of radium and two high voltage x-ray machines. Five auxiliary cancer clinics have been established to take care of the increased cancer load among veterans. At Dayton, Ohio, research is being conducted in the use of artificial fever in the management of arthritis, dementia paralytica and other forms of neurosyphilis.

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Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 11, 1936.

The Medical Profession and Voluntary Euthanasia

The movement of the Voluntary Euthanasia Legalization Society to make legal the terminating of painful incurable disease by the physician at the request of the patient has received influential support from both the profession and the public, but it has also excited much opposition. The medical journals have devoted editorials to the subject but they have refrained from committing themselves to support or opposition. The medical profession has begun to react to the proposal in the correspondence columns and so far there is more opposition than support. In the *British Medical Journal* Dr. R. A. Fleming, consulting physician to the Royal Infirmary and physician to the Royal Hospital for Incurables, Edinburgh, describes the lives of cancer patients in the hospital as by no means dull, valueless or so miserable that they would welcome release. He always taught his students that pain should be soothed by drugs. To this communication Dr. Killick Millard, founder of the movement, replies that voluntary euthanasia is not intended for the many patients with incurable disease who do not suffer pain and are happy and cheerful, but only for the comparatively few who are distressing, though in the aggregate the number is considerable and quite sufficient to justify the proposed legislation.

In the *Lancet* two surgeons take a different line, pointing out the value of surgical alternatives to euthanasia. Mr. A. S. Blundell Bankart, an orthopedic surgeon asks whether the members of the society are aware that no patient need suffer intolerable pain from any local disease situated below the segmental level at which bilateral chordotomy can be done—the fifth cervical segment of the spinal cord. It is true that the operation might prove fatal, but that should meet with the approval of the society. However, the operation is not particularly difficult or dangerous, and Mr. Bankart has never known of a death directly due to it. He does not put this suggestion forward as an argument against the aims of the society but thinks that it limits considerably the field of its concern. Those who are especially concerned with the treatment of such conditions as inoperable cancer of the pelvic organs might give consideration to the surgical relief of pain. Mr. Lambert Rogers, professor of surgery in the University of Wales, supports Mr. Bankart's suggestion. He states that, even before the failure of drugs to relieve pain, surgical relief is frequently advisable in order to prevent the demoralizing effect of large doses of opiates. He has found bilateral division of the pain tracts in the cord valuable in relieving the pain of advanced malignant disease. The outlook for the patient may thus be brightened and entirely changed. In reply to this suggestion, the surgeon H. H. Greenwod, a member of the Consultative Council of the Voluntary Euthanasia Society, points out that chordotomy has but limited scope. It is impracticable in cancer of the tongue, pharynx, thyroid, larynx and esophagus. He refers to the widespread belief that lingering cases of fatal disease are ministered to by trained and sympathetic nurses and by every resource of medical science. The hideous truth is that the majority of these patients are discharged from the hospital and terminate their pitiable existence in poor homes. Even in hospitals there is a residuum for whom alone the bill is designed, relief of whose sufferings is beyond medical skill.

The Reform of the Medical Curriculum

As previous letters show, the reform of the medical curriculum has been under discussion for some time. The report of a committee of the General Medical Council (THE JOURNAL, July 20, 1935, p. 210) was circulated to the licensing bodies and the deans of the medical schools for their observations. As a result of the replies a revised report has now been submitted to the council, of which the following are the main points:

PREREGISTRATION EXAMINATIONS

Before beginning the medical curriculum proper an examination should be passed in general education, chemistry (theoretical and practical), the elementary principles of the chemical combination of elements, physics (theoretical and practical), the elementary mechanics of solids and fluids, the elements of heat, light, sound, electricity and magnetism, elements of general biology (including practical work), fundamental facts of vegetable and animal structure, life history and function, and introductory embryology. The examination in biology may be taken after registration in the period of professional scientific subjects.

THE MEDICAL CURRICULUM

The period of study from registration to diploma should not be less than five years. The first two years should be devoted to professional scientific subjects with an introduction to clinical subjects. Throughout the whole period of study, attention should be directed to the measures by which health may be assessed and maintained and to the prevention of disease. The professional scientific subjects include dissection of the entire cadaver, anatomy of the living body, embryology, histology, the elements of genetics, general physiology, the normal reactions of the body to injury and infection (as an introduction to general pathology and bacteriology), and the elements of normal psychology. In the second year, instruction should be given in the methods of clinical examination, including physical signs, the stethoscope and the ophthalmoscope, the examination of body fluids and introductory pharmacology.

THE PERIOD OF CLINICAL STUDIES

The period of clinical studies occupies the third to the fifth years, during which clinical instruction should be continuous. Students should not pass to this period until they have passed the examinations of the first and second years. A minimum of three years should be given to clinical study in an approved hospital. The medical training includes a clinical clerkship for six months, a continuous period of not less than a month's residence in a hospital or nearby, a clinical clerkship of not less than one month in a children's ward or hospital, regular attendance in an outpatient department for three months, regular instruction and demonstrations in applied anatomy and physiology by the teachers of those subjects as well as those of clinical subjects, instruction in therapeutics (including dietetics, prescribing, physical therapy and nursing) children's diseases and welfare, acute infections, tuberculosis, psychology, mental diseases and deficiency, dermatology, radiology and vaccination. The surgical training includes a surgical internship for six months, during which time the student should spend the greater part of his time at the bedside and in the outpatient department, a continuous period of not less than one month's residence in a hospital, regular attendance in an outpatient department for three months, surgical methods, including physical therapy, minor operative surgery on the living, administration of anesthetics (not less than ten times), a course of operative surgery, regular instruction and demonstrations in applied anatomy and physiology by the teachers of these subjects and those of clinical subjects, disease in infancy and childhood, ophthalmology including refraction, otology, rhinology and laryngology, surgical radiology, venereal diseases, orthopedics, and dental diseases. The training in midwifery, gynecology and infant hygiene includes systematic instruction, the applied anatomy and physiology of pregnancy and labor, clinical midwifery, maternity and gynecologic practice for six months, not less than two months' residence in a maternity hospital during which the student should attend at least twenty cases under supervision, antepartum and postpartum care, and management of the puerperium

and new-born infant. Pathologic and bacteriological instruction includes general and special pathology (functional and structural) morbid anatomy, clinical and chemical pathology, general and clinical bacteriology, and immunology. Other subjects of instruction are pharmacology, materia medica (including practical pharmacy), hygiene and public health, forensic medicine, and the legal and ethical obligations of physicians, including national health insurance and other acts of parliament. It will be noticed how exceedingly practical is the curriculum, of which many of the requirements are new.

Reduction of Road Accidents

Official figures just issued show a reduction in the terrible toll of road accidents. During 1935 there were 822 fewer deaths and 12,802 fewer injuries than in 1934. The following table gives the comparative figures:

	1934	1935	Reduction
Killed	7,343	6,521	822
Daily average	20	18	2
Injured	231,603	218,798	12,805
Daily average	634	599	35

The reduction is stated by the minister of transport to be due to the safety measures he has introduced, such as pedestrian crossings and the 30 miles an hour speed limit in built-up areas. It is noteworthy that the killed have been reduced in about twice the proportion that the injured have. This is explained by the reduction of speed rendering accidents less fatal. In London, during 1935, 1,116 persons were killed and 55,517 injured. The corresponding figures in 1934 were 1,448 and 59,510. Thus there was a reduction of 332 killed and 3,993 injured. In a broadcast speech the minister of transport said that, although there has been an average addition of 480 automobiles every day throughout the year, the number of persons killed or injured on the roads had fallen from 99 for every 1,000 vehicles in 1934 to 87 in 1935. Figures for London showed an alarming increase in the casualties to bicyclists, whereas injuries to pedestrians and other road users had been reduced. He reminded bicyclists of the provisions in the highway code to ride not more than two abreast and, where conditions warranted, in single file; also not to cut in or out.

PARIS

(From Our Regular Correspondent)

Jan. 3, 1936.

Occupational Diseases

The law making obligatory the declaration of occupational diseases dates from 1919. But it applied only to certain of the most important ailments. A decree of Oct. 15, 1935, increased the number of those diseases, and they are numerous. Here is the list: first, every disease caused by lead, its alloys and combinations; mercury, arsenic, phosphorus, nickel, fluorine and allied substances; carbon sulfide; chromic acid and chromates; manganese dioxide and pyrolusite; zinc; halogenic derivatives of the carbohydrates of the greasy order (série grasse); benzine and homologous liquids, trinitrophenol, chloroform, and the like; irritant gas and vapors of any kind; cellulose paints and varnishes; alkali and caustic bases; tar, pitch, mineral oils; opium; emetine and quinine alkaloids. To the list are added physical agents such as short wave radiations, radium, and sudden variations of pressure; some irritant foreign timber, and biologic agents, such as bacteria and Ancylostoma. The enumeration covers also any product responsible for dermatoses; the powders, either siliceous or ferric, and the dust of wool; every repeated trauma causing inflammation of serous bursae or ligaments or of chronic arthritis; every repeated noise that might cause deafness, and every cause of conjunctivitis or even nystagmus.

The difference between the former law for the protection of workers against occupational hazards is that the law formerly related only to emergencies the cause of which was sudden and unexpected, whereas the worker is now guaranteed against every risk that can be traced to his occupation. He is now entitled to receive half his salary, and a pension if partial or total disability occurs; his family is indemnified in case of death, and he can be treated free by the doctor of his choice, who is paid by the employer. The only great risk of disease not covered by the law is tuberculosis, unless it is the consequence of some traumatism or former contamination. But in this case the worker is protected by the Assurances sociales, which pay during three years the expenses of sanatorium or special surgery and aid the family. Apropos of tuberculosis, another recent decree includes the suppression of the 100 per cent bonus to the pensioned for tuberculosis who would refuse to entrust their children to the care of special organizations. Too often, as a matter of fact, they kept with them their babies, disregarding the risks of contamination. On the other hand, the pensioned for tuberculosis are now bound to give evidence, every three months, that they have received regular treatment.

The Vernes Resorcinol Reaction for Tuberculosis

Years ago, Vernes proposed, for the diagnosis of latent tuberculosis, a flocculation test of the blood based on the principle that a suspension of resorcinol causes flocculation of all serums but most of all the serum of the tuberculous. The extent of this flocculation can be read with a photomèter and is called the optic index. An optic index greater than 30 shows tuberculosis. André Richard, Mozer and Mlle. Madeleine Poidevin have tried this reaction in osteo-articular tuberculosis in 120 children, in the Maritime Hospital in Berck. The children were from 4 to 15 years old and were selected at random from more than a thousand other tuberculous children. These workers conclude that for diagnosis the Vernes reaction is of little value: When positive, it is an important sign of tuberculosis, but it lacks responsiveness and is negative in 75 per cent of the active cases. In prognosis it seems to have no practical value.

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The Hippocratic Oath

France does not like ceremonies, even if they include in the ethics of some profession an element of history, tradition and cooperation. The oath of Hippocrates, for instance, which was in former times a solemn and sacred introduction to medical life, was suppressed after the French Revolution in many of the French faculties, although maintained in some others. In the Faculty of Marseilles, which is one of the oldest of the French universities, having succeeded the ancient faculty of Aix, the candidate, after the discussion of his thesis, and facing the assembled body of professors, stands up and, with right hand raised, utters the oath of Hippocrates. This custom has just been restored in the University of Paris, and this restoration, initiated by Dean Roussy, must be considered one of the many measures demanded by the best part of the profession in order to maintain a high standard of morality among the body of physicians, young and old.

Spirochetal Epidemic Meningitis in Children

Drs. Julien Marie and Pierre Gabriel had the opportunity last summer to observe some cases of acute meningitis. Three cases were treated in their hospital. Three children, between 10 and 13 years of age, swam in the same river, near Paris. Inquiry revealed that other boys who swam in the same river presented the same symptoms, called acute meningitis by the local practitioners. In the three former boys, evidence of the spirochetal nature of the meningitis was given by a high rate of agglutination and by the inoculation of guinea-pigs. The onset was sudden, with an unquestionable syndrome of meningitis; the fever reached 40 C. (104 F.) and lasted six or seven days; the spinal fluid presented a high cytologic reaction, reaching 450 leukocytes, which disappeared slowly about the

twentieth day. It was sometimes a lymphocytosis, sometimes polynucleosis. The termination was regularly in the direction of recovery, without any sequelae. Those cases are probably the first ones of epidemicity of the meningitic form of spirochetosis. The authors think that the epidemic conditions are most probably associated with swimming in a contaminated river; but one must consider also that the houses of the patients were infested with rats. The site of entry was perhaps the conjunctiva. These cases occurred in the summer months. The fact that the exact nature of the disease was ascertained only by biologic research indicates that many similar cases are perhaps undiagnosed and called simply meningitis by poorly equipped country practitioners.

BERLIN

(From Our Regular Correspondent)

Dec. 23, 1935.

The New State Physicians' Law

The German government published the long awaited and much advertised state physicians' ordinance, Dec. 13, 1935, which will go into effect April 1. It is comprehensive legislation relating to the medical profession and represents years of careful preparation. While retaining what is worth while in previous legislation, it adds much that is new and in keeping with the present-day concept of the state. The ordinance originated in the need for a comprehensive regulation of the licensing and practice of the medical profession throughout the reich. Previous legislation governing the profession in the respective states as well as courts of professional honor is abolished and superseded by the new national legislation. In general, the new membership of the medical profession will be placed under the supervision of the minister of the interior. The regulatory powers of the minister of labor, which apply to medical service in the social insurance societies, sick benefit societies and so on, will remain undisturbed. The "Kassenärztliche Vereinigung Deutschlands" (insurance physicians' union of Germany), founded in 1933, also remains although it now becomes an adjunct of the "reichsärztekammer" (state physicians' chamber) and legal successor of two hitherto existing organizations, the "Deutsche Aerztevereinbund" (German physicians' association) and the "Verband der Aerzte Deutschlands" (league of physicians of Germany) or Hartmann league, which, according to the new law, will be disbanded.

The reichsärzteordnung contains ninety-three paragraphs arranged in five sections. The principal four sections deal with (1) the physician, (2) the German medical profession, (3) penalties for professional offenses and (4) government supervision. The following quotation from section 1 shows clearly the importance of this comprehensive legislation: "The physician is called on to administer to the health of the individual human being and to that of the people as a whole. He fulfils the latter function through public duties as regulated by this statute. The medical profession is no trade."

The first section goes on to outline in eighteen paragraphs the concept of the medical profession and to deal with the appointment of physicians, a term which replaces the certification heretofore in use. Accordingly, only the person officially authorized or "appointed" will be allowed to practice medicine and to designate himself "physician." The appointment is valid for the entire reich. Only a physician duly appointed in such a manner may be called on to fill any post involving medical practice or science within the gift of any authoritative or legislative corporate body. This does not apply to persons who are employed under the direction or supervision of a physician. Appointment is made by the minister of the interior on recommendation of the reichsärztekammer to such persons as fulfil the requirements of the laws governing appointments. Appointment will be denied or revoked (1) when the applicant does not possess civil rights, (2) when he is lacking in national and moral reliability, particularly if he is alleged to possess criminal or vicious traits, (3) when the applicant is declared professionally unqualified, (4) when the applicant is deemed unsuitable or unreliable because of a physical deformity or some mental deficiency or because of a disease, (5) when the applicant is ineligible for government service by reason of his racial extraction or that of his wife and when, at the time of application, the proportion of physicians of other than German extraction to the total number of physicians in the German reich exceeds the proportion of non-German inhabitants to the total population of the reich. The provisions of the existing statutes governing officials heretofore were applied primarily to the kassenärzte (sick insurance physicians); besides, following a regulation of the minister of education, physicians' licenses have been refused non-Aryan candidates on general principles. According to the new legislation, appointment of non-Aryans shall henceforth be determined by the proportionate number of non-Aryans within the population as a whole; that is to say, about 1 per cent (here as in the laws governing officials, one non-Aryan grandparent or marriage with a non-Aryan constitutes sufficient ground for a refusal). Thus henceforth a numerous clausus will apply to non-Aryan physicians, not only in the kassenpraxis (insurance practice) but in general practice as well. This will scarcely have any important results for the time being, as the proportion of non-Aryan physicians still exceeds the legal maximum. By reason of physical defects and so on (item 4) the authorization to engage in the practice of medicine can be revoked as the occasion warrants. Revocation can be made also in case of a duplication of professional income (as for example in the case of a woman physician whose husband follows the medical profession and derives an income from it). Resignation of an appointment is permissible. It is illegal, however, to practice medicine either professionally or factually if the appointment has been revoked or renounced or if application for an appointment has previously been denied. A physician is forbidden also to change his status to that of a "heilkundiger" (lay practitioner), as occasionally has been done in an attempt to make larger profits. It is expressly stated that "the physician is duty bound to exercise his profession conscientiously and to show by his conduct within and without the sphere of his professional activities that he is worthy of a respect and confidence compatible with the high standards of his calling."

Regulations concerning professional duties and questions of professional ethics are further provided for in a Berufsordnung (professional ordinance). It represents a heretofore unheard of extension of governmental authority into medical activities.

Maximum physician's fees as fixed by the fee ordinance can be exceeded only with the approval of the reichsärztekammer in the absence of a written agreement.

Any person who, lacking an official appointment as physician, styles himself by a designation resembling that of a physician and which conveys the impression that such person has been duly authorized to practice medicine under the official designation of "physician," shall be subject to imprisonment for a term not to exceed one year or a fine, or to both penalties.

Special attention is called to the stipulation that physicians, in the exercise of their profession, are forbidden the use (on announcements, name plates and prescriptions, for example) of any designation that refers to the activities of some predecessor.

The second section, of thirty-two paragraphs, is dedicated to the "reichsärztekammer." It states that "the vocation of the German medical profession is to effect, in the interest of the welfare of people and reich, the preservation and improvement of the health, of the good heredity and of the racial stock of the German people."

In future the membership of the German medical profession will present three gradations: first, each physician must belong

to a bezirksvereinigung (district organization); above these local groups will be a "regionale aerztekammer" (regional chamber of physicians), while supreme medical authority will be vested in the reichsärztekammer, whose director (reichsärzteführer, reich physician leader) shall be appointed or removed by the führer and chancellor of the reich on recommendation of the minister of the interior acting in conjunction with the leader of the National Socialist party. The rights of the district organizations over their own membership shall be restricted. For members of the reichsärztekammer and the regional chambers as well as for the district leaders, the provisions of the "statutes governing officials" apply with special regard to the antecedents of the physician and his wife. In these capacities, physicians having one Jewish grandparent or a non-Aryan spouse will not be permitted to serve. Exceptions may be allowed by the director of the reichsärztekammer.

The director of the reichsärztekammer is assisted by a permanent vice director. The director is empowered also to deputize others for the performance of various duties. An honorary board of which the membership is of his own choosing serves the director in an advisory capacity. This board consists of members of the reichsärztekammer, the director of the kassenärztliche vereinigung, a representative of the regional chambers, and at least one government physician.

Membership in the subordinate organizations is regulated along similar lines. Members of the regional chambers (excepting the adviser, who is honorary) are always representatives of the district organizations and the medical faculty of the district as well as being official physicians.

Membership in each aerztekammer is for a period of four years. The election of the majority of the members takes place as follows: from five names submitted to it the reichsärztekammer selects and appoints two physicians; a regular representative and a substitute.

It is important to note that the directors of the reichsärztekammer and the regional chambers as well as the directors of the district groups are not bound to agree with the stands taken on a subject by these respective bodies. They must state the reasons for their opposition, however, for purposes of record.

All physicians in the German reich, including research workers and university professors, are controlled by the reichsärztekammer. The only exceptions are medical officers of the army and navy on active service. Regulations of the reichsärztekammer are binding except that they must not interfere with the service activities of medical officials. The reichsärztekammer can exact fines up to 1,000 reichsmarks for violation of rules. Every physician residing in a given district belongs to the district organization and a newcomer must announce his presence to the organization. The regional chamber controls all physicians belonging to the district organizations within its sphere. The reichsärztekammer shall maintain an official register of all physicians in the reich. All physicians pay compulsory dues to the reichsärztekammer.

It shall be the duty of the reichsärztekammer to uphold superior scientific and ethical medical standards, to see to it that professional honor is maintained and professional duties fulfilled, and to foster the education and training of physicians by the creation of facilities necessary thereto. It shall further be the duty of the chamber to promote cordial relations between physicians and to effect an equitable distribution of physicians throughout the reich for the benefit of the profession and of the population as a whole. This means that no establishment of a physician in a certain locality can take place without the consent of the chamber. Moreover, it engages in benevolent activities, such as the creation of insurance for the protection of physicians and their dependents in times of emergency.

In addition, the reichsärztekammer is empowered to issue special regulations which will assure participation of the physician in the duty of preserving and improving the heredity and the racial stock of the German people; likewise in collaboration with the state bureau of health and the bureau of statistics it may exercise supervision or issue instructions with regard to questions of health, heredity and race. The reichsärztekammer has the further authority to assist the public as well as the party in all matters relative to the medical profession, especially by furnishing expert opinion and advice.

Medical treatment is considered a part of public welfare service with the exception of such institutional treatment as is reserved for free professional medical activity. Only the reichsärztekammer can conclude agreements with the public welfare agents concerning the activities of physicians; it alone determines the conditions under which physicians are permitted to give treatment; it dictates the terms of the agreement and issues regulations for the physician. It makes special binding rules concerning the economic wisdom of therapeutic measures and prescriptions. Medical treatment in the public health service by an individual physician can also be subject to regulation by the reichsärztekammer.

Permanent arbitration committees will be established within the district organizations to deal with differences between physicians. In case of a withholding of information or a refusal to appear in person before the committee, a fine not to exceed 1,000 reichsmarks may be imposed as penalty. Should the arbitration committee fail to bring about an agreement, the director of the district organization makes an arbitration if the persons concerned so wish and thus further legal procedure is out of the question.

The third section, of twenty-seven paragraphs, stipulates the "punishment of professional offenses"; it is intended for the physician who is lax in the performance of his professional duties. Violations of the professional ordinances especially are involved. The penalties with which the guilty one is threatened are warning, censure, a fine not to exceed 10,000 reichsmarks, suspension from public welfare activity for a definite or indefinite period of time, and finally declaration of the guilty person to be unfit to practice the medical profession. In particular cases the penalty may be made public. Warning, censure, a fine not to exceed 1,000 reichsmarks, and suspension from practice can be imposed by the reichsärztekammer without further legal proceedings. The more severe penalties, however, can be inflicted only by the professional medical court. The procedure to be followed in various cases is precisely outlined. Among others, after a criminal procedure has resulted in acquittal, a professional procedure can be instituted only if the offenses, while not constituting a breach of the criminal law, violate the professional regulations.

Professional legal procedure may be instituted on the motion of the board of control or of the reichsärztekammer; proceedings may also be brought against a physician at his own request if he wishes to clear himself of suspicion. The district professional tribunal consists of a president with judicial powers and two other physicians; the medical law court or professional court of first instance for the entire reich consists of a president with judicial powers and three physicians. The members of these tribunals should not at the same time be executive officers of the reichsärztekammer or of the subordinate organizations. The procedure before the professional tribunals is based on existing civil service procedure against accused government officials. A prosecutor is not provided for. The accused may be defended by an attorney, another physician or any authorized official. The president can, without further proceeding, bring the trial to an abrupt close if the penalty of a warning, a censure or a fine not exceeding 500 reichsmarks is deemed sufficient. Against such a closing of the case, how-

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ever, all who wish may voice their opposition. From a decision of the medical district court, the board of control or the reichsärztekammer, the convicted physician may lodge an appeal with the physicians' supreme court. The decision of this court is final. It is in no way bound by the finding of the district court. It can even change the res gestae or remand the case to the lower courts.

When a legal professional action is taken against a physician that is likely to result in his being declared unfit to practice medicine, a preliminary suspension from professional activity can be ordered by the district court. Moreover, such suspension may be imposed, after a hearing before the reichsärztekammer, on any physician imminently suspected of serious dereliction in his professional duties. On the other hand, if an action based on gross, carelessly reported information is instituted, the costs will be assessed against the person making the allegation.

Among further stipulations worthy of mention is the regulation that authorizes the reichsärztekammer to disband any physicians' organizations having as their function the observation of professional economic interests or other affairs. The minister of the interior can likewise, in collaboration with the minister of education and after a hearing by the reichsärztekammer, disband any organization interested in the advancement of medical science. For the establishment of new organizations of this type, permission of the minister of the interior is required.

Unquestionably, the legislation here broadly summarized, based on long standing knowledge of conditions, and clearing up as it does so many points, is a progressive step in the right direction.

Whether or not these innovations will stand the test of time remains for the future to say. It is a source of gratification that at last, for once, the German physicians are distinctly removed from the status of tradespeople in which a tax-inflicting bureaucracy had placed them—a situation which militated against both their self respect and their professional class consciousness. The reich physicians' ordinance places the professional life of the physician on a new plane. For the first time he is united with his colleagues throughout the reich and the fundamentally independent character of the profession is upheld.

BUDAPEST

(From Our Regular Correspondent)

Dec. 5, 1935.

The Tercentenary of the University of Budapest

From October 23 to 29, in the presence of distinguished scientists of the world, a celebration was held of the three hundredth anniversary of the university founded by "Cardinal Cicero," Peter Pázmány, the Budapest University of today. At first and during the Middle Ages it had only theological and philosophical faculties, to which the successors of Peter Pázmány in the primate's seat, Losy and Lippay, added in 1667 the legal faculty, filling four chairs with Jesuits. The faculty of medicine was founded through the benevolence of Queen Maria Theresa in 1777, in which year the university moved from Nagyszombat to Buda, the ancient part of Budapest, and in 1784 to Pest. Up to 1848 the university was conducted by the Jesuit order and later by the royal vicegerent council. An act of parliament in 1848 proclaimed the "freedom of teaching and learning" and placed the university wholly under the control of the Hungarian government.

The jubilee was celebrated with splendor, enhanced by the presence of delegates from 130 foreign universities. The celebration was opened by Regent Horthy and Dr. Korniss, rector of the university, who in his opening address emphasized that the university was founded in the most tragic epoch of the nation. He pointed out that Hungary stopped the influx of Tatars and Turks, and that if the Magyars had not fought this battle the Koran would be taught today in Oxford and Cambridge. Former rector Balázs Kenyeres spoke about those modern students who brought fame to Budapest University by their work done abroad. Their thirst for science drove Hungarian students in swarms to Germany, Italy, England, France, Norway, Netherlands and other centers, where many of them gained fame. The Vienna, Cracow, Prague, Königsberg, Wittenberg and Leipzig universities had Hungarian rectors. A Hungarian, Mihály Kassay, founded one of the famous libraries of the university of Wittenberg. Another Hungarian, Uri János, became the librarian of the university of Oxford. On the recommendation of Boerhaave, the Dutch professor, Paul Gyöngyössy became the house physician of the Tzarina Elisabetha; Balsaráti was appointed court physician to Pope Paul V; another graduate of Budapest University, Michael Zichy, became the court painter of the Russian tsar. Many Hungarians became explorers and discoverers. Count Moritz Benyowszky became king of Madagascar. Körösi Csoma Sándor edited the first dictionary of the Tibetan language. Gheorghe Almássy made explorations in China, Count Eugen Zichy in the Caucasus, and Samuel Fenichel and Louis Biró in New Guinea. Anyos Jedlig constructed in 1827 the first electric motor and in 1859 the first electric dynamo. Farkas Kempelen (1734-1804) constructed a writing and talking machine and also a chess automaton, which may be seen today at King's College, London. Professors Déry and Zipernowsky invented the electrical transformer; Donath Bánky, the carburetor. The first underground electric railway was built by Hungarian engineers in Budapest and was opened in 1895.

Three Nobel prize winners are of Hungarian origin, Philip Lénárt, Bárány and Zsigmondy. János Raymann of Eperjes experimented with cow vaccination in 1717, four years prior to the English Jenner, and Stephan Veszprémy, a practitioner of Debretzin, worked in London on therapeutic inoculations against disease. His priority on this field of medicine has been acknowledged. Hodossy Szkolanits Ferencz experimented in 1773 with inoculating insane patients with pus, with the intention of producing a curative fever. The first publication in medical literature of purely laryngologic nature was from the pen of Csermák, professor at Budapest University, in the *Orvosi hetilap*, which is today the leading Hungarian medical journal. Ignatz Semmelweis was a Hungarian physician who constantly accentuated his Magyar origin by wearing the Magyar costume, the braided mantle. His discovery of the cause of puerperal fever was extremely important to mankind.

A special ophthalmologic chair was created in Budapest in 1804, and in 1874 dermatology was accorded a special chair. With slow progress, Budapest University came to be the most frequented university of the world. With its ever increasing popularity and the strong feeling of the Magyars for scientific learning came the endeavor to improve high schools. In 1872 Kolozsvár University was founded, in 1912 Pozsony University and in 1914 Debretzin University.

Professor Kenyeres continued his address with a pathetic reference to the cruelty of fate whereby Hungary has been deprived of two thirds of its territory. The misfortune of the war is felt also by our ancient university, which lost its mighty estates to Czechoslovakia and which has received them back just now, thanks to the wise decision of the Hague international court. The old link with foreign scientific institutions is limited by the economic position of the state, and the number of university chairs has decreased from 113 to 97 and the number of the auxiliary staff from 367 to 265. Likewise the number of foreign books and periodicals had to be reduced. The position of Magyar youth became serious. The gates of the university had to be closed to many. Among such hardships

with superhuman effort only was it possible to help mothers, infants and children. In this field the National Public Hygiene Institute, founded and maintained by the Rockefeller Foundation, aids immensely.

On the occasion of the three hundredth anniversary of the founding of the university, the state donated a modern astronomical observatory and a seismograph. The faculty of medicine received a new clinic for tuberculous patients, and the state erected a huge home for indigent students.

In connection with the jubilee, there was an exhibition of historical relics, including the foundation letter written by the great founder Peter Pázmány; the corroborating document signed by King Ferdinand II in 1635, and a document, called Diploma Inaugurale, written by Queen Maria Theresa, enacting the reorganization of the university and the original matriculation books from 1635 on. The history of Budapest University will be shortly published in book form, comprising five volumes, written by the present professors and late students of the university.

AUSTRALIA

(From Our Regular Correspondent)

Dec. 6, 1935.

Medical Problems in India

Speaking to the Medical Missionary Association meeting in Melbourne, Dr. H. Thomas of Madura, Southern India, described the appalling need for extension of medical service in India. It was difficult to know whether preventive or curative medicine was the more urgent, but curative treatment paved the way toward gaining the confidence of the villagers. In India 8,500,000 persons were born and 6,500,000 died every year. The present rate of increase was therefore 2,000,000 a year, and if the fearful infant mortality should be reduced it would be necessary to provide employment and an object in life for a still greater population. That problem would be faced as soon as preventive medicine became more efficient. Despite the country's enormous wealth there was fearful poverty in India, and the per capita wealth was only £19, compared with £450 in England. Only 13.9 per cent of the Indian male and 2 per cent of the female population were literate. The problem of medical work was increased by the fact that 300,000,000 of the 350,000,000 population lived in villages. Centrally placed hospitals were usually established as transport facilities were good, and leper and tuberculosis clinics and dispensaries had been established in surrounding villages. More than 50 per cent of the hospitals were self supporting. Dealing with the problem of child marriage, it was necessary to study customs and proceed by gradual evolution rather than by drastic change. The early maturity of Indians was one of the reasons for child marriage. It was hard to make the people understand that their early maturity did not mean marriage. They should be taught a moral sense, and a great service would be done by showing them that there was something beyond satisfaction of passion. Many missionaries felt the strain of the tropics, and time and again the medical men had to deal with cases of men and women missionaries with a psychologic imbalance. This caused expense to the mission board and disappointment to the worker and indicated that a psychologic examination was as essential as a medical examination for intending missionaries. There was a tremendous lack of proper equipment and staff in Indian hospitals, and in the 253 mission hospitals and 6,000 government hospitals there were only 73,000 beds, or one bed for each 5,000 of the population.

Medicine Through the Ages

The Public Library of Victoria, in conjunction with the British Medical Association, is holding in Melbourne an exhibition of rare medical books extending from 1700 B. C. to the present day.

Ancient medicine is represented by a facsimile of the Edwin Smith surgical papyrus, a manuscript written in Assyria in cuneiform characters, as well as the Ebers medical papyrus written in Egypt about 1500 B. C.

Hebrew medical hygiene of 500 B. C. from the religious point of view is one of the main themes of the Book of Leviticus. This is represented in the collection by a copy of the extremely rare Coverdale and Tyndale English Bible, printed in Antwerp in 1537.

Greek and Roman medicine from 400 to 10 B. C. is covered by rare editions of the works of Hippocrates, Aristotle, Lucretius and Celsus. From the second century the works of Galen were for hundreds of years the supreme authority on medical subjects; a well used student's edition of 1548 is shown.

Arabian medicine is represented by a manuscript copy of the Koran and the works of Avicenna. Several of the big encyclopedic works of medieval writers are on view, including those of Vincent of Beauvais and of Bartholomew the Englishman, both in rare fifteenth century editions. For the qualifications of a "Doctour of Phisyke" reference may be made to the extraordinarily rare first edition of Chaucer, published in London in 1532.

Two epoch-making works of 1543 are on view—both, however, in later editions—the "Astronomia" of Copernicus and the "Fabrica" of Vesalius, the founder of modern scientific anatomy. In 1600 appeared the first great scientific book published in England, the "De magnete" of William Gilbert, physician to Queen Elizabeth.

Rare books of the seventeenth century include Harvey's book on the movement of the heart and blood, Bacon's "Advancement of Learning" and the first edition of Galileo's "Dialogues," published in 1632 and suppressed by the Inquisition. Among other interesting books of the same century is one by John Hall, the son-in-law of Shakespeare, describing how he cured his wife's ailments, and the "Bills of Mortality," published in London during the great plague of 1665.

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Marriages

LOUIS CARROLL SCHUSTER to Miss Verna Mae Dill, both of New Orleans, in Baton Rouge, La., Nov. 20, 1935.

H. BROOKS SMITH, Bluffton, Ind., to Miss Claudia Purkhiser of Indianapolis in Fort Wayne, Dec. 31, 1935.

HENRY BERNARD SHOWALTER, Kenbridge, Va., to Miss Edna Elizabeth Kiely of Marion, Dec. 19, 1935.

ISRAEL O. SILVER, Steelton, Pa., to Miss Miriam Stotsky of Lancaster in Philadelphia, Nov. 24, 1935.

EDWIN J. G. VALENTINE JR., Jersey City, N. J., to Miss Virginia Moll of Woodbridge, recently.

STANLEY B. GORDIN, Alquina, Ind., to Miss Dorothy Estelle Kelsey of Oakland City, Dec. 22, 1935.

RICHARD D. SIMONTON, Boise, Idaho, to Miss Marguerite Anne Genten at Winona, Minn., Oct. 11, 1935.

JOSEPH W. MCHUGH JR. to Miss Catherine Stackhouse, both of Johnstown, Pa., Nov. 30, 1935.

WILLIAM H. MCCARTY to Miss Sallie Cynthia Holmes, both of Marion, Va., Nov. 26, 1935.

HUBERT GROS to Miss Jean Kramer, both of Delphi, Ind., in Franklin, Oct. 17, 1935.

ALBAN F. TESSIER to Miss Ruth L. Kowalke, both of Milwaukee, Nov. 15, 1935.

JOHN S. WOOLERY, Bedford, Ind., to Miss Kay Craig of Detroit, Dec. 28, 1935.

GEORGE WILLIAM FOX to Miss Elise Scott, both of Milwaukee, Dec. 21, 1935.

LEO F. SCANLAN to Miss Louise Crist, both of Philadelphia, Nov. 27, 1935.

MORTON VESELL to Miss Dorothy Skolkin, both of New York, Oct. 12, 1935.

Deaths

Walter Nelson Thayer Jr., Albany, N. Y.; New York University Medical College, 1897; past president of the American Prison Association; member of the National Committee for Mental Hygiene and the American Association for the Study of Feebleminded; assistant physician to the Clinton Prison, Dannemora, 1904-1913; physician to the Eastern New York Reformatory, Napanoch, 1913-1920, and superintendent, 1920-1921; superintendent of the Institution for Defective Delinquents, 1921-1929; superintendent of prisons, State of Maryland, 1929-1930; commissioner of correction, State of New York, since 1930; formerly member of cabinets of Governor Roosevelt and Governor Lehman; aged 60; died, January 6, of pneumonia.

Howell Terry Pershing ● Denver; University of Pennsylvania Department of Medicine, Philadelphia, 1883; chairman of the Section on Nervous and Mental Diseases of the American Medical Association, 1912-1913; associate professor of neurology and psychiatry, emeritus, University of Colorado School of Medicine; member of the American Neurological Association; consultant neurologist to the Denver General Hospital and the Children's Hospital; author of "The Diagnosis of Nervous and Mental Diseases" in 1901; aged 77; died, Nov. 29, 1935.

David Aloysius Prendergast ● Cleveland; Western Reserve University Medical Department, Cleveland, 1906; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; visiting otolaryngologist to St. John's Hospital, consulting otolaryngologist to the Lakewood Hospital and consulting oculist to St. Ann's Hospital; aged 54; died, Dec. 2, 1935, of bronchopneumonia.

Maurice I. Rosenthal ● Fort Wayne, Ind.; Medical College of Ohio, Cincinnati, 1890; member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons and the American Radium Society; fellow of the American College of Surgeons; served during the World War; for many years on the staff of St. Joseph's Hospital; aged 66; died, Dec. 24, 1935, of a self inflicted gunshot wound.

Harry Bergman, Livingston, Texas; Tulane University of Louisiana Medical Department, New Orleans, 1895; member of the State Medical Association of Texas; formerly secretary of the Polk-San Jacinto Counties Medical Society; member of the city council; aged 61; medical superintendent and owner of the hospital bearing his name, where he died, Nov. 20, 1935, of heart disease.

Henry Gray Anderson ● Waterbury, Conn.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1889; past president of the New Haven County Medical Society; fellow of the American College of Surgeons; served during the World War; aged 70; on the staff of the Waterbury Hospital, where he died, Dec. 18, 1935, of septicemia.

Edward J. Ryan, St. John, N. B.; College of Physicians and Surgeons, Baltimore, 1908; formerly assistant in pathology, University and Bellevue Hospital Medical College, New York; at one time on the staffs of the Bellevue and St. Vincent's hospitals, New York; served during the World War; commissioner of St. John General Hospital; aged 52; died, Nov. 26, 1935.

William Lewis Wallace ● Syracuse, N. Y.; Syracuse University School of Medicine, 1897; one of the founders, president of the board of trustees, on the surgical staff, and lecturer of anatomy and physiology, Crouse-Irving Hospital; formerly on the staffs of the University Hospital and the Hospital of the Good Shepherd; aged 73; died, Dec. 25, 1935, of erysipelas.

John Coleman Everett, Nellysford, Va. (licensed in Virginia under the exemption law of 1885); member of the Medical Society of Virginia; secretary of the county board of health; at one time member of the state board of health; aged 73; died, Dec. 4, 1935, in the University of Virginia Hospital, Charlottesville, of carcinoma of the colon and bronchopneumonia.

Winfield Scott Devine ● Marshalltown, Iowa; State University of Iowa College of Medicine, Iowa City, 1887; past president of the Marshall County Medical Society; formerly medical superintendent of the Iowa Soldiers' Home Hospital; aged 81; died, Dec. 11, 1935, in the Evangelical Deaconess Home and Hospital, of heart disease.

Melville Freeman Johnston ● Richmond, Ind.; Bellevue Hospital Medical College, New York, 1886; past president of the Wayne County Medical Society; formerly city and county health officer; for many years member of the school board; on the staff of the Reid Memorial Hospital; aged 77; died, Dec. 29, 1935, of cerebral hemorrhage.

Millard Hunter Fortney, Arcola, Ill.; Loyola University School of Medicine, Chicago, 1919; member of the Illinois State Medical Society; mayor; served during the World War; formerly school board trustee; aged 47; died, Dec. 1, 1935, of septicemia, which developed from an injury received in a fall.

William A. Geohegan, Dayton, Ohio; Pulte Medical College, Cincinnati, 1882; formerly professor of practice of medicine at his alma mater; at one time on the staff of the Bethesda Hospital, Cincinnati; aged 76; died, Dec. 18, 1935, of cardiovascular renal disease.

Harry Reasoner Geyer ● Zanesville, Ohio; Medical College of Ohio, Cincinnati, 1892; fellow of the American College of Surgeons; on the staffs of the Good Samaritan and Bethesda hospitals; aged 68; died, Dec. 6, 1935, of hemorrhage due to gastric ulcer.

Philip Gath, Cincinnati; Medical College of Ohio, Cincinnati, 1893; formerly assistant superintendent and resident physician to the Cincinnati Tuberculosis Hospital; aged 67; died, Nov. 23, 1935, of coronary occlusion, arteriosclerosis and hypertension.

Arthur Ogburn Spoon, Greensboro, N. C.; University of Maryland School of Medicine, Baltimore, 1908; member of the Medical Society of the State of North Carolina; aged 54; died, Dec. 10, 1935, in the Wesley Long Hospital, of influenza and pneumonia.

Clarence A. Flowers, Wendell, N. C.; College of Physicians and Surgeons, Baltimore, 1905; member of the Medical Society of the State of North Carolina; aged 54; died, Dec. 4, 1935, in the Mary Elizabeth Hospital, Raleigh, of acute dilatation of the heart.

Edward Houghton Green, Legion, Texas; Jefferson Medical College of Philadelphia, 1894; served during the World War; connected with the Veterans Administration Facility; aged 68; died suddenly, Dec. 19, 1935, in Kerrville, of dilatation of the heart.

Rollin Theodore Adams, Mantorville, Minn.; University of Minnesota Medical School, Minneapolis, 1893; member of the Minnesota State Medical Association; past president of the Dodge County Medical Society; aged 71; died, Dec. 6, 1935.

Matthew Porter, Dayton, Ohio; Medical College of Ohio, Cincinnati, 1897; member of the Ohio State Medical Association; aged 65; on the staff of the Miami Valley Hospital, where he died, Nov. 25, 1935, of carcinoma of the pancreas.

Samuel Hoffman Sidlinger, Hutchinson, Kan.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1874; member of the Kansas Medical Society; aged 90; died, Dec. 28, 1935, of a fracture of the hip and arteriosclerosis.

Olney Windsor Phelps, Warren, Mass.; Dartmouth Medical School, Hanover, N. H., 1878; an Affiliate Fellow of the American Medical Association; formerly member of the board of health, and school committee; aged 86; died, Dec. 2, 1935.

Lynn Carl Smith, Adin, Calif.; Hahnemann Medical College of the Pacific, San Francisco, 1906; aged 63; died, Nov. 25, 1935, in the Veterans Administration Facility, West Los Angeles, of carcinoma of the prostate with metastasis to the brain.

Arthur Ernest Smith, Harrison, Neb.; University of Kansas School of Medicine, Kansas City, 1907; member of the county board of health, and insanity board; aged 62; died, Nov. 21, 1935, in Lusk, Wyo., of cardiovascular renal disease.

Charles Norris Stephenson, Milton, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1907; member of the Iowa State Medical Society; aged 50; died, Dec. 19, 1935, as the result of a sinus infection and pneumonia.

Bernard Francis Dorgan ● New Haven, Conn.; Yale University School of Medicine, New Haven, 1926; aged 34; on the staff of St. Raphael Hospital, where he died, Dec. 5, 1935, of peritonitis, appendicitis, nephritis and uremia.

George Hermann Wright ● New Milford, Conn.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1894; aged 67; died, Dec. 11, 1935, of chronic myocarditis and acute nephritis.

John Andrew Devine, Bancroft, Iowa; State University of Iowa College of Medicine, Iowa City, 1908; member of the Iowa State Medical Society; aged 55; died, Dec. 10, 1935, of pneumonia following the amputation of a leg.

Ira Edwin Durant, San Antonio, Texas; University Medical College of Kansas City, Mo., 1898; member of the State Medical Association of Texas; served during the World War; aged 64; died, Dec. 17, 1935, in a local hospital.

Dennis Wilhoit, Bagdad, Ky.; Hospital College of Medicine, Louisville, 1900; member of the Kentucky State Medical Association; aged 66; died, Dec. 21, 1935, in the King's Daughters' Hospital, Shelbyville, of heart disease.

P. Norman Sutherland ● Angola, Ind.; Detroit College of Medicine, 1896; past president of the Steuben County Medical Society; secretary of the city board of health; aged 65; died, Dec. 28, 1935, of cerebral hemorrhage.

Ira Everett Dyas ● Eastport, Maine; University of Cincinnati College of Medicine, 1912; past president of the Washington County Medical Society; formerly member of the school board; aged 67; died in November.

Paul Raymond Siberts, Somerton, Ariz.; Northwestern University Medical School, Chicago, 1903; member of the Arizona State Medical Association; aged 59; died, Nov. 22, 1935, at National Military Home, Calif.

William Francis, South Charleston, Ohio; Starling Medical College, Columbus, 1897; formerly mayor of South Charleston; past president of the board of education; aged 67; died, Nov. 29, 1935, of cerebral hemorrhage.

Allen Gray Sampson ● Philadelphia; Medico-Chirurgical College of Philadelphia, 1901; aged 57; died, Nov. 22, 1935, in the Graduate Hospital, of heart disease, cirrhosis of the liver, uremia and diabetes mellitus.

Albert Allen Sanford, Duran, N. M.; Vanderbilt University School of Medicine, Nashville, Tenn., 1882; member of the New Mexico Medical Society; aged 78; died, Nov. 12, 1935, at Los Angeles, of myocarditis.

William John Robb, Denver; University of Colorado School of Medicine, Denver, 1913; member of the Colorado State Medical Society; aged 52; died, Nov. 22, 1935, in Gallup, N. M., of pulmonary tuberculosis.

Carlton Lee Starkweather, Occoquan, Va.; Georgetown University School of Medicine, Washington, D. C., 1898; member of the Medical Society of Virginia; aged 71; died, Dec. 11, 1935, of heart disease.

Carlo Pascarelli ● Brooklyn; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1920; served in the Italian Army during the World War; aged 40; died, Nov. 27, 1935, of heart disease.

Edward Chisholm Cobb, Ruther Glen, Va.; University College of Medicine, Richmond, 1899; member of the Medical Society of Virginia; aged 59; died suddenly, Dec. 14, 1935, of angina pectoris.

Darling L. Peeples, Navasota, Texas; University of Georgia Medical Department, Augusta, 1885; veteran of the Spanish-American War; aged 72; died, Nov. 28, 1935, of coronary occlusion.

John Charles Bennett, Waterloo, Iowa; Rush Medical College, Chicago, 1932; member of the Iowa State Medical Society; aged 32; died, Dec. 10, 1935, in the Presbyterian Hospital, of pneumonia.

Robert Stewart Dowd, Quyon, Que., Canada; Trinity Medical College, Toronto, Ont., 1895; L.R.C.P., Edinburgh, 1895; aged 67; died, Nov. 1, 1935, in the Ottawa (Ont.) Civic Hospital.

Frederick N. Garand, Toledo, Ohio; Kentucky School of Medicine, Louisville, 1891; formerly member of the city council; aged 71; died, Dec. 4, 1935, in St. Vincent's Hospital, of diabetes mellitus.

Mark Barton Smith, Los Angeles; Rush Medical College, Chicago, 1883; aged 77; died, Dec. 16, 1935, in the Cedars of Lebanon Hospital, of arteriosclerosis, chronic nephritis and uremia.

Gowan Ferguson, Great Falls, Mont.; University of Toronto (Ont.) Faculty of Medicine, 1888; member of the Medical Association of Montana; aged 69; died, Dec. 5, 1935, of heart disease.

John William Giles ● Nyack, N. Y.; Hahnemann Medical College and Hospital of Philadelphia, 1885; on the staff of the Nyack Hospital; aged 73; died, Dec. 17, 1935, of heart disease.

John Alexander Neff, Victoria, B. C., Canada; Trinity Medical College, Toronto, Ont., Canada, 1888; formerly medical officer of health of Ingersoll; aged 76; died, Sept. 10, 1935.

Felix John Scheffler, Onawa, Iowa; John A. Creighton Medical College, Omaha, 1910; formerly county physician; aged 49; died, Nov. 27, 1935, of carcinoma of the bladder.

Alexander Hill Neagle, Elmira, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1918; aged 44; died, Nov. 26, 1935, of pulmonary tuberculosis.

Charles Warren Dennis, Middletown, N. Y.; Rush Medical College, Chicago, 1883; aged 77; died, Dec. 9, 1935, of arteriosclerotic heart disease and bronchopneumonia.

Horace Henry Hosford St. John, Edina, Mo.; Barnes Medical College, St. Louis, 1900; aged 84; was found dead in bed, Dec. 17, 1935, of valvular heart disease.

John Edgar Swarts, Canton, N. Y.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1919; aged 39; died, Dec. 13, 1935, of cirrhosis of the liver.

John Keen Young, Hot Springs National Park, Ark.; University of Nashville (Tenn.) Medical Department, 1909; aged 55; died, Nov. 7, 1935, of angina pectoris.

Henry Edward Dunham, Minneapolis; Hahnemann Medical College and Hospital, Chicago, 1889; aged 73; died, Dec. 7, 1935, in Rochester, of coronary sclerosis.

Sarah Marie Washburn Alexander, La Valle, Wis.; Woman's Medical College, Chicago, 1890; aged 88; died, Dec. 5, 1935, of arteriosclerotic heart disease.

Frank Warren Hudson, Troy, Ohio; Eclectic Medical College, Cincinnati, 1929; aged 33; died, Nov. 20, 1935, of pulmonary tuberculosis and brain abscess.

Demas Hartzell Abbott ● Cincinnati; Medical College of Ohio, Cincinnati, 1896; aged 63; died, Dec. 17, 1935, of myocarditis, cholelithiasis and duodenal ulcer.

William Porter McGill, Camden, Tenn.; University of Tennessee Medical Department, Nashville, 1877; county health officer; aged 76; died, Nov. 30, 1935.

Henry Frank Phillips, San Francisco; St. Louis College of Physicians and Surgeons, 1898; aged 89; died, Nov. 28, 1935, of coronary sclerosis with occlusion.

Fulton Thomas Ross, Kenton, Tenn. (licensed in Tennessee, 1914); aged 53; died, Dec. 14, 1935, in the Baird-Brewer Hospital, Dyersburg, of pneumonia.

James P. Dougherty, St. Louis; Barnes Medical College, St. Louis, 1901; aged 75; died, Dec. 16, 1935, of cerebral arteriosclerosis and bronchopneumonia.

Henry A. Baker, Oklahoma City; Kentucky School of Medicine, Louisville, 1890; Civil War veteran; aged 93; died, Dec. 11, 1935, of senility.

Vincent A. Biggs, Martin, Tenn.; Vanderbilt University School of Medicine, Nashville, 1884; aged 76; died, Dec. 10, 1935, of cardiac asthma.

Cyrus Wallace Scott, St. Petersburg, Fla.; Long Island College Hospital, Brooklyn, 1882; aged 79; died, Dec. 12, 1935, of chronic myocarditis.

Richard Johnson Goodrich, Cainsville, Mo.; Kentucky School of Medicine, Louisville, 1893; aged 66; died, Dec. 11, 1935, of heart disease.

Alfred Minot Wheeler, Lansing, Mich.; Chicago College of Medicine and Surgery, 1909; aged 58; died, Dec. 16, 1935, of diabetes mellitus.

Marcus K. McElhannon, Henryetta, Okla. (registered by Oklahoma State Board of Health, under the Act of 1908); aged 64; died in November.

Clara Louise Williams, Potter Valley, Calif.; Johns Hopkins University School of Medicine, Baltimore, 1902; aged 65; died, Nov. 19, 1935.

John W. Field, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1894; aged 62; died, Dec. 4, 1935, of uremia.

Milton G. McCorkle, Portland, Ore.; Tennessee Medical College, Knoxville, 1896; aged 63; died, Dec. 6, 1935, of chronic myocarditis.

William Duncan Smith, Edmonton, Alta., Canada; McGill University Faculty of Medicine, Montreal, Que., 1890; died recently.

Mary M. Bennett, Haviland, Kan.; Homeopathic Hospital College, Cleveland, 1884; aged 83; died, Dec. 23, 1935, of mitral stenosis.

J. Edouard Besner, Maniwaki, Que., Canada; School of Medicine and Surgery of Montreal, 1910; aged 50; died, Nov. 3, 1935.

Walter Fullarton Mayburry, Ottawa, Ont., Canada; University of Toronto Faculty of Medicine, 1897; died, Nov. 19, 1935.

Francis A. Williams, Ritchey, Ill.; Columbus Medical College, 1891; aged 80; died, Dec. 4, 1935, of arteriosclerosis.

James C. White, Paris, Texas; Missouri Medical College, St. Louis, 1881; aged 80; died, Dec. 2, 1935, of senility.

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Bureau of Investigation

PLAPAO LABORATORIES, INC.

F. J. Stuart and His Quack Rupture-Cure Device Debarred from the Mails

For more than a quarter of a century one F. J. Stuart of St. Louis has been selling what was essentially a piece of adhesive plaster and a little ointment as a cure for rupture. Purchasers have been obtained through fake analyses and misleading testimonials, and in the past persons who were unwise enough to answer Stuart's advertisements found their letters in the hands of letter-brokers, to be rented or bought by any other quacks in the rupture-cure field.

Stuart's device used to be called the "Adhesive Hernial Plaster Pads." The name was changed many years ago to "Adhesif Plas-tr-Pads" and still later to "Adhesif Plapao-Pads for Rupture." The original name of Stuart's quackery was the Stuart Plaster Pad Company, but many years ago he changed that name to Plapao Laboratories, Inc. The reason for the change in name we do not know, but it occurred after some unenviable publicity had been given to the Stuart Plaster Pad Company due to action taken by government officials under the National Food and Drugs Act. Stuart's original claims before the Food and Drug officials haled him into court were frankly and blatantly fraudulent. The advertising stated definitely: "Stuart's Adhesive Plaster-Pads Cure Rupture." After his brush with the Food and Drug officials, this advertising was changed to "Stuart's Plas-tr-Pads Give Quick and Permanent Relief," which, of course, meant the same thing but didn't say it quite so crudely. In fact, the word "cure," which occurred all through the very early Stuart advertising, was eliminated and some more euphonious but equally misleading phrase used in its stead.

This department of THE JOURNAL carried an extensive article on the Stuart quackery in the issue of Feb. 10, 1912. At that time it was brought out that Stuart's device, which, according to Stuart, would do in a few days what some of the most skilful physicians and surgeons are unable to accomplish in weeks or even months, was, to all intents and purposes, a strip of adhesive plaster with a small pad containing a simple ointment. The padded portion of the plaster was to be placed over the hernial opening and the plaster itself applied to the skin. Then, if Stuart was to be believed—which he was not—the plaster would "contract, strengthen and restore" the "stretched-out and weakened muscles" and the hernia would be cured.

THE JOURNAL article brought out the fact that the Association's chemists, after analyzing the ointment which comprised the "patent medicine" accessory to the device, reported that it was essentially lanolin to which tannic acid had been added, the whole perfumed with oil of pine needles. The same article also disclosed that while Stuart's advertising gave the impression that trusses for rupture are harmful and worthless, yet at the same time he was carrying a line of trusses that he was willing to sell to those who were unwilling to buy his Plapao Pads.

In the article, too, some of Stuart's testimonials were discussed. One which Stuart played up at some length purported to be an analysis issued by "Dr." A. B. Griffiths of London, England. Stuart reproduced the Griffiths "analysis" in facsimile. It was shown in the first article that Griffiths was himself a faker who made a business of furnishing analyses for various classes of medical humbugs at one guinea ($5) each. The older article also gave the results of investigations of testimonials published by Stuart showing that individuals who had, according to the testimonials, been claimed to have been cured of their hernia were, in fact, not cured. The article quoted, too, from Stuart's advertising, showing that while he made the claim that the "utmost privacy" was always maintained in all of his correspondence and business relations, nevertheless, one of the largest letter-brokers in the country listed for sale or rent over 17,000 original letters that had been sent to the Stuart Plaster Pad Company!

Following the 1912 article there were published references to two cases in which the Stuart device had been alleged to have produced either death or serious injury. The first concerned the case of a woman who brought suit against the Plapao Laboratories to recover damages for the death of her husband from a strangulated hernia after using Plas-tr-Pads. The man had been suffering from rupture for some years and had worn steel or elastic trusses. Having seen some of the Plapao Laboratories' advertisements, he ordered the Plas-tr-Pads, applied them on the 15th of the month and on the 19th died from strangulated hernia. The other case was that of a woman who also purchased Plapao Pads and applied them as directed and, after using them for some time, was compelled to call a physician because of the pain. The physician testified that he found an inflammatory condition with sloughing and gangrene and peritonitis. While the woman was awarded $3,000 damages in the trial court, the judgment was reversed on a technicality when it was carried to the Court of Appeals.

In May 1935 the Plapao Laboratories, Inc., and F. J. Stuart were called on by the Post Office department to show why a fraud order should not be issued against them. A hearing was held in July and occupied four days. The transcript of the record contained nearly 700 pages exclusive of exhibits. In addition, Stuart's attorneys were granted permission to file a brief subsequent to the hearing, and this was done and given

due consideration by the Office of the Solicitor of the Post Office Department. After going over all the evidence in the case, the Acting Solicitor, Mr. W. E. Kelly, declared that Stuart's scheme was one for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises. Mr. Kelly recommended that the Postmaster General issue a fraud order against the Plapao Laboratories, Inc., and F. J. Stuart, debarring them from the mails. This was done on Sept. 6, 1935.

The Acting Solicitor's memorandum to the Postmaster General is an extensive record of some forty-eight pages and contains much detail that need not at this time be gone into. It was brought out that F. J. Stuart started the fraud in 1907 under the name Stuart Plaster Pad Company. In 1910 he incorporated it under the laws of the state of Missouri as Plapao Laboratories, Inc. At the time of the hearing the concern was a family affair, the officers being Frank J. Stuart, President, Treasurer and General Manager; Ruth L. Stuart (daughter of Frank J.), Vice-President, and Mrs. Stuart (wife of Frank J.), Secretary. Stuart himself was said to own all of the $50,000 capital stock. The gross receipts at the time the Post Office authorities looked into the business were between $50,000 and $60,000 a year, but in more prosperous years had amounted to as much as $250,000 a year. Mr. Kelly's memorandum also states that the concern has been advertising in about twenty-five newspapers, placing the advertisements through an agency, the Commercial Advertising and Exploitation Company,

which also was owned by Stuart. In addition to the quackery involved in this case, the Plapao Laboratories, Inc., also sold artificial limbs, braces, abdominal supporters, suspensories and similar articles.

The memorandum then goes on to detail the means by which Stuart was able to catch his victims: belittling ordinary trusses, warning the public against them, elaborating on the proposition that the principle on which the truss works is wrong, while the Plapao Pads were right, etc. Stuart still had his "patent medicine" adjunct, the ointment that was supposed to heal the rupture and which, of late years, he has called "Factor Plapao." This was supposed to be rubbed into the skin over the rupture before applying the Plapao Pads. The Pads themselves are described in the Solicitor's memorandum as follows:

"Stuart's Adhesif Plapao-Pads consist of a strip of adhesive tape about sixteen inches long and two and one-half inches wide which broadens out to an irregularly circular section about four and one-half inches in diameter and about one and three-fourths inches from one end of the strip. To this roughly circular part is attached half of an ovoid shell made of some hard substance approximately two and three-fourths inches long by two inches wide, which is the equivalent of the pad on an ordinary truss. This ovoid shell is pierced upon the surface which is applied to the body by a five-sixteenths of an inch opening through which its contents, consisting of the 'Factor Plapao' is supposed to flow onto the skin of the wearer, this 'Factor Plapao' being the salve contained in the shell."

The memorandum brought out, further, that the ointment that was supposed to heal the rupture was still essentially lanolin with astringents (tannic and gallic acids) making up the bulk of the medicament. It appeared, however, that occasionally the so-called Factor Plapao contained red pepper and even oil of mustard. The memorandum also made clear that Stuart attempted to evade responsibility by stating in a circular that was sent with the device after he had the victim's money that the company would "assume no responsibility for the improper application or use of Plapao Pad." It also showed that while the advertising literature led the ruptured to believe that trusses were dangerous or worthless and that the Plapao Pad was the only real cure, the purchaser found after paying for the device and getting the instructions for its use that it was practically essential in every case also to order a belt or a truss.

The government put on the stand as experts two reputable physicians, one the Acting Surgeon-General of the United States Army and the other a prominent surgeon from the District of Columbia. Both of the men had had long experience in dealing with various kinds of ruptures and were thoroughly familiar with the proper methods of treatment. They testified, after thoroughly familiarizing themselves with the Plapao device and the constituents of the salve, etc., that the thing was worthless as a cure for rupture. These physicians showed that it was quite impossible to cure a hernia by rubbing a counter-irritant on the skin over the hernia.

Stuart put on two alleged experts, both of them, it appears from the memorandum, homeopaths. One of these men claimed that he had treated an Iowa senator for ventral hernia with the Plapao Pads. He would not, however, declare under oath that the senator was cured, but did express the opinion that his condition was improved. The Solicitor's memorandum states that the cross-examination of this witness showed that he had a very inaccurate and uncertain recollection of the case and that his statement could not be taken as correctly reporting either the nature or the cause of the hernia suffered by the senator or the character and results of the treatment. The same physician also admitted that he had never since used the Plapao Pads on any of his own patients, and he refused to express any opinion as to the efficacy of the Plapao Pads when used for femoral or inguinal hernias. In fact, the Solicitor pointed out that the testimony of this physician who appeared as an expert for Stuart flatly contradicted the representations contained in Stuart's literature.

The other expert produced by Stuart testified on direct examination that he had observed good effects where he had applied Plapao Pads to persons who had purchased them through one of Stuart's demonstrators at a local hotel. The doctor stated that hotel employees had an arrangement whereby purchasers of the Plapao Pads were sent to him (the physician) to have the Pads applied. The memorandum brings out that on cross-examination this physician displayed and confessed ignorance of the anatomical structures involved in hernia, both as to their location and function. When questioned concerning Poupart's ligament, he is said to have stated that he had heard of it! He was unable to answer a question as to where Poupart's ligament is located.

Stuart also brought to the hearing as witnesses laymen who were to testify as to the efficacy of the Plapao Pads. They came from Alton, Ill., and Bloomington, Ind. All of the witnesses, however, wore belts or some other retaining device in addition to Plapao Pads! The government put on the stand some lay witnesses who had used Plapao Pads without any beneficial results, and one of the witnesses had been taken ill while wearing a Plapao Pad and had to be hastily removed to a hospital and immediately operated on.

The memorandum refers, also, to the fact that Stuart also advertised that he had a cure for irreducible rupture that was "successful when everything else failed." This also consisted of a device with a "patent medicine" adjunct. The latter, instead of being called "Factor Plapao," was called "Abaco," but it had practically the same composition as Factor Plapao. The only difference was that while the Factor Plapao was supposed, when rubbed on the skin, to cause the muscles to come together and close the opening, the Abaco, when rubbed on the skin, was said to break up the adherent, incarcerated, irreducible "bunch"! There is much more in the Solicitor's memorandum regarding this fraud, but sufficient has been said to indicate the character of the swindle that Stuart has carried out for so many years. On Sept. 6, 1935, the mails were closed to the Plapao Laboratories, Inc., and F. J. Stuart and their officers and agents as such.

After the fraud order had been issued against the Plapao Laboratories, Inc., and F. J. Stuart, Stuart attempted to evade it by sending out equally fraudulent material under the old name of his quackery, the Stuart Plaster Pad Company. As a result, the Solicitor for the Post Office Department on November 13, 1935, recommended that a supplemental fraud order be issued against the Stuart Plaster Pad Company. The Postmaster General issued such an order on November 15. A further supplemental order was issued on December 21 to cover the name Plapao Company.

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MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE: The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding and (6) the date of issuance of the Notice of Judgment—which may be considerably later than the date of the seizure of the product.]

Alberty's Organic Phosphate Pellets.—Alberty Food Laboratories, Hollywood, Calif. Composition: Calcium, iron, sodium, potassium and phosphorus compounds, in milk sugar. For building nerve tissue. Fraudulent therapeutic claims.—[*N. J. 23011; April, 1935.*]

Dakota Jack's Cowboy Liniment.—Dakota Jack-White-Moon Remedy Co., Louisville. Composition: Essentially a volatile oil such as turpentine oil, ammonia (1 per cent), chloroform, linseed oil and water. Fraudulent therapeutic claims.—[*N. J. 23010; April, 1935.*]

Instant Alberty's Food.—Alberty Food Laboratories, Hollywood, Calif. Composition: Essentially dried milk and plant material including starch. "Body builder," etc. Fraudulent therapeutic claims.—[*N. J. 23020; April, 1935.*]

Red Monk Tonic.—Red Monk Medicinal Wine Co., Los Angeles. Composition: Essentially caffeine, a small amount of quinine compound, with alcohol, glycerin and water. For blood and nerve disorders. Fraudulent therapeutic claims.—[*N. J. 23024; April, 1935.*]

Almo Tonic.—Hallstead Mfg. Co., Hallstead, Pa. Composition: Essentially laxative plant extract, alcohol (28.6 per cent by volume) and water. For nerve, kidney and liver disorders. Fraudulent therapeutic claims.—[*N. J. 23024; April, 1935.*]

Correspondence

TESTS OF RENAL EFFICIENCY

To the Editor:—I am greatly interested in what Dr. R. H. Freyberg had to say about the choice of tests of renal efficiency in THE JOURNAL, Nov. 16, 1935. Undoubtedly the Newburgh-Lashmet concentration test and the urea clearance test accurately measure kidney function, but for the practitioner they are unwieldy. The first test requires thirty-eight hours under a carefully selected diet with 1 Gm. of salt added and the severe restriction of fluids to 780 cc. in twenty-four hours. The collections of urine are taken over this period of thirty-eight hours. The urea clearance test requires three hours of the patients' and attendants' time and the added expense of chemical analyses. Obviously such involved procedures are not adaptable to ordinary medical practice.

A hazard of the Newburgh test is that, with such severe fluid restriction, patients with moderately advanced Bright's disease may be precipitated into uremia. Dr. Harry H. Derow at the Beth Israel Hospital has abandoned the test for this reason.

I still believe that the fifteen and thirty minute phenolsulfonphthalein excretion test, which requires one hour of the patient's and doctor's time and no laboratory expense, is the test of choice for the practitioner.

EARLE M. CHAPMAN, M.D., Boston.

BLOOD TESTS FOR PATERNITY

To the Editor:—In THE JOURNAL, Dec. 21, 1935, page 2096, a correspondent requested information concerning the age of an infant when agglutination tests for paternity should be undertaken. The answer stated that, "in cases of disputed paternity, reliable results can be obtained even when the blood of newborn infants is tested" and that the incomplete development of the blood group at birth did not interfere with its determination. I should like to qualify these statements by pointing out that certain phases of the development of the blood group in the young infant often necessitate postponement of the tests before they can be accepted with the finality required for forensic purposes.

In a study entitled "Iso-Agglutinins of the New-Born" (*Am. J. Dis. Child.* **36**:54 [July] 1928) I presented the results of an investigation which strongly suggested that iso-agglutinins detected in the cord blood and in the peripheral blood of the infant for a variable period after birth were in large part derived from the mother through the medium of placental transfer. In twenty-seven of forty-one cases in which iso-agglutinins were noted in the blood of the umbilical cord, reexamination within ten days revealed either a diminution in their titer or their complete disappearance. The blood group was later definitely established with the elaboration by the infant of iso-agglutinins and receptors of its own manufacture. The significance of this sequence of events was illustrated in two cases encountered in this study. In these infants the cord blood revealed the presence of a and b iso-agglutinins and the complete absence of agglutinogens, so that the blood, like that of the mother, could be classified as group O. Reexamination of the blood of these infants within ten days failed to reveal any trace of either iso-agglutinin. A and B agglutinogens, on the other hand, made their respective appearance at this time. With later retesting, the acquisition of the corresponding b and a iso-agglutinins was in evidence and the blood groups could be completely classified as A and B. In other words, the blood of the two infants at birth fulfilled the requirements of group O by tests for receptors and iso-agglutinins, to be replaced subsequently by their own blood groups A and B. These are instances in which the iso-agglutinins that disappeared did not properly belong to the infant but had presumably originated by placental transmission from the mother. Changes of this character are probably not uncommon and must be borne in mind when blood group determinations are utilized for medicolegal purposes. If blood tests to exclude paternity had been carried out on these two infants at birth they would have satisfied the requirements of group O. With the subsequent dropping out of one or both iso-agglutinins and the development by the infant of its own specific agglutinogens and their associated iso-agglutinins, the problem of paternity is reopened for discussion. Such a train of events is of special significance when the permanent blood group contains at least one of the receptors, in which case more precise linkage to a parent may be established.

When an important decision, such as the exclusion of paternity, is to be rendered on the basis of blood group determination, it is urgent that the results in the instance of the infant be evaluated in the light of these observations. The conclusion which this study justifies is the expediency, from the medicolegal standpoint, of deferring these tests for a minimum period of at least two weeks, so that the development of the blood group by the young infant may be assured. Particularly is caution to be exercised when the blood at birth conforms to that of group O. When it is anticipated that paternity will be disputed, frequent retesting from birth is desirable in order to record the development of the blood group factors. It is possible, perhaps, that these restrictions apply as well to the M and N agglutinogens of Landsteiner and Levine, which have recently been subjected to genetic analysis.

CARL H. SMITH, M.D., New York.
New York Hospital Children's Clinic,
525 East Sixty-Eighth Street.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

COLD ALLERGY OR PRURITUS HIEMALIS

To the Editor:—I am treating a man who is 60 years old. His past history is in every respect negative. For the last twenty years he has had an intense pruritus. The itch sets in with the cold season and disappears year after year with the onset of warm weather. Examination of the patient by numerous physicians was always negative. No skin treatment or internal medication brought any relief. Would you consider this a case of cold allergy? What would be the treatment? Please omit name.

M.D., New York.

ANSWER.—The description given does not state whether the itching is periodic or constant, whether it occurs only after chilling, or what parts of the body are affected. It seems sufficient, however, to exclude pruritus due to toxic conditions, icterus, some form of lymphoblastoma, internal carcinoma, malaria, diabetes, tuberculosis, skin parasites and nephritis. These can hardly be imagined operating each winter for twenty years and ceasing to cause itching in the spring time. Four possibilities present themselves: (1) pruritus hiemalis, (2) bath pruritus, (3) chilblains, (4) cold allergy.

Pruritus hiemalis comes on with the first cool weather and persists until the advent of warmer weather in spring, growing worse as the temperature falls and better as it rises. It is more pronounced on undressing morning and evening and for an hour or two after retiring. During the day there may be little irritation. It is quite general but often is more intense on the anterior inner sides of the thighs, on the calves, about the joints and on the forearms. The only skin lesions are the secondary changes due to scratching. It is ascribed to a naturally sensitive skin, deficient in fat and perspiration and therefore too dry in the dry air of winter. Coarse woolen underwear encourages it. The remedy is avoidance of soap and hot water in bathing and frequent applications of oil or ointment, particularly right after bathing before the skin is wholly dry. Measures should be taken to keep the air moist in the patient's rooms.

Bath pruritus is the result of drying of the skin by too generous use of soap and hot water in the dry air of winter and

steam heated apartments. It is most apt to occur on the legs, where the skin is often seen to be dry and scaly. Another favorite site is the upper part of the back, which is subject to a peculiarly stinging itch on retiring after a hot bath. It is better to bathe in the day time, for the itching seems to be less when the patient dresses after the bath and keeps his mind occupied. Soap should be used only on the hairy parts, feet and hands. Luke warm water followed by cold water is best.

Chilblains would affect only certain of the extremities in which the cutaneous circulation has been injured by freezing or severe chilling. The part is bluish red, moist and cold. The itching can be alleviated by compression for a short time with a wide elastic band, by exercise of the blood vessels by means of warm baths followed by a short cold douche and vigorous massage toward the center of the body with some oil or fat, by the faradic current, or by coating the part with successive layers of paraffin and then stripping them off. If the feet are affected, as is usual, loose warm footwear is imperative. No garters should be worn.

Cold allergy is manifested by attacks of swelling and congestion of the part, usually an extremity, after exposure to cold, accompanied by a tingling sensation. Soon after this, throbbing and burning sensations occur in the part affected and a general reaction comes on, with flushing of the face, rapid pulse, low blood pressure and sometimes fainting. If return circulation from the exposed part is prevented by a tourniquet, no general reaction occurs until the tourniquet is released, showing that the reaction is due to some substance, resembling histamine, that is separated or produced in the tissues by the chilling. The general reaction passes off in about a half hour, but the local reaction may continue for twenty-four hours. This hypersensitive condition can often be cured by daily graduated cool baths, just enough to cause a slight reaction.

DERMATOPHYTOSIS

To the Editor:—I am suffering from a severe attack of epidermomycosis on my fingers and hands. I have used to date iodine solution as suggested by the Philadelphia Skin and Cancer Clinic, sulfur ointment, modified Whitfield's ointment, balsam ointment, taralba (Stearn's distillate of coal tar) Upjohn, and crude coal tar and zinc oxide. I cleared up the first attack (July 15, 1922) but the last remission (August 13 to the present) seems too stubborn. Kindly suggest further treatment. The skin becomes dark red, blisters form and break, leaving raw pits, the skin peels; under the new skin are more blisters. There is considerable itching, which is controlled by tar ointment. M.D., Wisconsin.

Answer.—The treatment of dermatophytosis calls for resourcefulness on the part of the physician. The fungi seem to be as versatile in their cultivation of resistance to medication as they are in causation of sensitivity of the patient.

An examination should be made for fungi in the tops of the vesicles. The tops should be removed, placed bottom up on the slide, covered with 10 per cent potassium hydroxide, a cover glass put over the preparation, and the slide placed in a humidor, a petri dish in which there is a small piece of moist blotting paper. At intervals search for fungi should be made by means of the high dry lens. If fungi are not found within seventy-two hours, the case may be a local sensitization caused by the previous ringworm infection. In that event a trial of soothing treatment is indicated, cool wet dressings of solution of aluminum acetate 1:16 in water, followed by calamine lotion. After the blisters cease to form a zinc oxide paste, zinc oxide and starch, 25 per cent of each in rose water ointment, may be applied once a day.

If fungi are found, the cool wet dressings of solution of aluminum acetate should be followed by a Whitfield ointment, 3 per cent salicylic acid and 6 per cent benzoic acid in rose water ointment applied twice a day after the cool wet dressings. Bathing is allowed, soap suds being used copiously on the feet but not allowing them to soak. The feet are dried and the ointment is applied. If preferred, the parts may be painted once daily with 1 per cent solution of potassium permanganate, allowed to dry, and a generous application of talcum powder applied with a cotton pad between the toes to prevent rubbing and perspiration. When the skin becomes too dry, the painting is stopped and the Whitfield ointment applied. This may be made stronger, of course, if thought necessary.

Roentgen treatments, one-fourth erythema dose (75 roentgens) once a week, will often clear up such an eruption whether it be due to sensitization or to ringworm infection. After the eruption has subsided, soothing applications should follow, calamine lotion or zinc paste, for about three weeks. After this, if the case is one of ringworm infection, Whitfield ointment, a salicylic sulphur ointment, or some active fungistatic should be used to prevent recurrence. If this effort is successful, the medication may be gradually lessened. It should be kept up to some degree for at least one month after apparent cure. It is understood, of course, that roentgen treatments should cease after two full erythema doses (600 roentgens) have been given and that all irritating applications must be avoided during and for three weeks after the use of the rays.

HARDNESS OF HEARING

To the Editor:—I am 38 years of age, graduated from medical school in 1920 eighth in my class of 186, have worn glasses since 1917 for a myopia and astigmatism, and had apparently good hearing during my college days. In November 1923 I contracted a good dose of bilateral mumps and was tied up for about two weeks and had a slight case of diphtheria in April 1922. In June 1920, just after graduating, I had the tonsils and adenoids removed. In my early life and up to about 1912 I had many attacks of tonsillitis and quinsy. I believe that I first noticed deafness about eight years ago, but of course it was slight and I did not think anything about it until the past two years, when it has become quite noticeable to myself and my wife, and it naturally is a handicap in practice unless the patient speaks a little louder than usual. In medical meetings at present I am lost and really do not gain anything by attendance. A year ago I went to Philadelphia and consulted a prominent otologist, who is a professor in my medical school. He gave me a rigorous examination. The hearing tests with tuning forks were confirmed by the audiometer. The hearing on the right side was seriously impaired, and the hearing loss in sensation units was 48 per cent on the left side, a loss of 24 per cent. Neurotologic (Bárány) examinations suggested impaired hearing due to causes beyond the middle and internal ear. The rotary and caloric stimulations of both horizontal semicircular canals were greatly impaired. The vertical canals of both sides were blocked in the vestibulo-ocular tracts; also of the vestibulocerebello cerebral tract of the right side. This reaction to the test indicated some pathologic change where the stimuli enter the brain stem to the ocular nuclei in the posterior longitudinal bundle on a level with the middle cerebellar peduncles. Perhaps there was an unrecognized middle ear and mastoid infection, or the toxins resulting from the mumps produced this pathologic change along the floor of the meninges, such as a serious meningitis might cause. He suggested neurologic, roentgen and ophthalmologic examinations. All these tests were done. Roentgen examination proved negative for both mastoids except that there was a slight darkening of the periphery of the right mastoid. Otherwise both were clear. The neurologist gave a negative report. The eye report was: O. D. —1.00 —0.75 cy ax 90; O. S. —2.25 —0.75 cy ax 97½. I had my glasses made according to that prescription, which was practically identical with my former one. To my personal history I can add that I never had a discharging ear nor do my parents remember such. Both my parents are deaf, my mother becoming so at about 20 years "following a cold from a rain storm," while my father has been that way for the past ten years; he is now 62. There is no history on my father's side of deafness, but my mother's father was deaf. (He stated that he contracted it working in a locomotive boiler works??) but there is also another son who is very deaf. My father now wears an electrical device [illegible] his ear, as he states that bone conduction does not seem to help him; my mother is too self conscious to wear one but hears only if one speaks very loudly. She watches the lips too. Urinalysis is negative, the Kahn reaction is negative and a blood count is as close to normal as possible. Is there any treatment you can suggest that might be helpful, or in your opinion is treatment hopeless? In such case would you advise a hearing device, as bone conduction? I recall hearing of a woman who is more deaf than I, yet when she suggested a hearing device to her otologist he emphatically told her that one would only make matters worse. I cannot understand that attitude. Recently I was told of a physician using "indirect diathermy" in treating deafness. Is there any value or harm in this method? I have been a great follower of your department in The Journal and have saved many an article which has been helpful. Kindly omit name if printed. M.D., Pennsylvania.

Answer.—It is quite unlikely that any form of treatment will have much effect in this case. On the other hand, it is possible that the hearing may remain in its present status indefinitely. With reference to electrical hearing aids, one may say that, if the bone conduction is good, electrical hearing devices, especially those with a bone conduction attachment, in many instances aid the patient greatly. There is no statement here with reference to the bone conduction, so it is impossible to say whether in this instance the hearing device will afford benefit. It will be necessary to have the bone conduction tested and then if it is fairly normal, or perhaps even lengthened, to try out one or several of the aids now on the market. It is advisable to buy one only if the patient finds that there is a material improvement when the apparatus is being used; but he must be careful to keep the eyes closed at first in testing the instrument in order to be sure that he is not doing some lip reading at the time and that the improvement, if any, is actually due to the appliance then being tried. If the bone conduction is very materially shortened, it is doubtful whether any appliance will be of assistance; but the ordinary 1 meter hearing tube used with one end in the patient's ear, and the larger funnel shaped end used by the speaker, is often of material assistance. Many persons abstain from using the tube because of inconvenience in carrying it about and the embarrassment it causes many persons when using it. So far as diathermy is concerned, we have never seen any data to make one believe that this method of treatment is of any avail.

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HIRSCHSPRUNG'S DISEASE

To the Editor:—A girl baby, aged 16 months, presents the signs and symptoms of early Hirschsprung's disease. The baby has one brother who is suffering from the same condition. What is the present status of medical and dietary treatment? What is the status of surgical treatment as reported by Dr. Rankin; viz., resection of sympathetic nerves? When is this surgical treatment indicated? Can anything be done to arrest the further progress of an early condition?

SAMUEL C. YACHNIN, M.D., Lyndhurst, N. J.

ANSWER.—Remedies of various kinds have been used in the treatment of Hirschsprung's disease without material benefit. Drugs intended to relieve the spasticity of the bowel, such as belladonna or atropine, have not yielded results. Cathartic drugs are usually without much effect, produce colic and tend to make the condition worse. Liquid petrolatum given by mouth acts as an intestinal lubricant and sometimes assists in the evacuation of hard feces. Enemas of olive oil, plain water or physiologic solution of sodium chloride tend to prevent stasis and are used to give the patient relief.

So far as the dietary treatment is concerned, the patient should be given water in abundance and a nutritious diet that contains a minimum amount of residue and cellulose material. In an infant of 16 months, milk with addition of a malt preparation or Keller's malt soup, and fruit, preferably stewed, vegetable soup carefully puréed, and sweets, as honey, jelly or jam, maple syrup or corn syrup with white bread, are indicated.

Hirschsprung's disease is due to an achalasia, a failure of the colonic musculature and of the rectosigmoidal sphincter to relax. A. Berg (Libman's Anniversary Volumes, volume 1), in reviewing five cases of Hirschsprung's disease in which ganglionectomy and ramisection was performed, found that the constipation was relieved, though the caliber and size of the bowel were not influenced by the operation. Consequently the patients are still liable to suffer from a complicating volvulus. Berg concludes that, if the occurrence of volvulus is to be averted, the dilated, elongated loop of the intestine must be resected. Fred W. Rankin and James R. Learmonth (*Ann. Surg.* **92**:710 [Oct.] 1930) advise that raminectomy be performed before profound atony or extensive atrophy has occurred. Alfred W. Adson (*Ann. Int. Med.* **6**:1044 [Feb.] 1933) reports that sympathectomy has been performed without a fatality in eight cases of Hirschsprung's disease occurring in children and in two cases of acquired megacolon in young women. Adson says that his patients had symptomatic relief and that although the colon was reduced in size it did not become of normal dimensions after the operation.

Most clinicians, particularly surgeons, advise that operation be performed relatively early, before extreme dilatation of the colon and loss of weight and strength have occurred. Early operation, if successful, would diminish the occurrence of volvulus and intestinal obstruction.

In a case of genuine Hirschsprung's disease, no procedure short of surgical intervention along the lines already indicated will arrest the progress of the disorder.

TREATMENT OF ANGIOMA

To the Editor:—Please let me know the best method for treating a case of capillary angioma in a 3 months old baby boy. The angioma is about 2.5 cm. in diameter and is located over the parietal region of the scalp. There is some hair growing on the area of angioma. It is more pronounced now than before. What would be the best age for treatment, now or later? Will carbon dioxide snow remove the tumor satisfactorily without destruction of the hair follicles? Will electrical coagulation or quartz light be less apt to injure the hair growth in the region of the tumor?

M.D., Washington.

To the Editor:—I have a hemangioma case in a baby 13 months old. The hemangioma is 2½ inches in diameter, is about one-fourth inch thick (elevated above the skin) and is growing rapidly. There are of course several ways to treat this type of a condition but what I am interested in is to know whether or not it might be treated by the dry ice method. Are there any dangers in this method or any contraindications? What are the advantages of this method over others if any?

M.D., Washington.

ANSWER.—In view of the fact that the angioma mentioned in the first query shows signs of increase in size it would be well to treat it immediately. Carbon dioxide snow, cautiously used, will remove the tumor satisfactorily. Electrocoagulation would be more painful and unless very cautiously used might injure the hair growth. Quartz light (water cooled) is of questionable value in these cases. In the use of carbon dioxide snow the degree of reaction varies with the pressure and the duration of the application. The duration of the freezing is the most important factor. At the first application the freezing is usually from a period of five to ten seconds. Subsequent applications with increased pressure or greater duration depend on the amount of destruction desired and the degree of involution resulting from the previous application. If the lesion is a simple capillary hemangioma (nevus araneus), application of the snow or the electric cautery to the central body, from which the capillaries radiate, often suffices. More than one application may be needed.

The hemangioma described in the second query can be treated by the dry ice method. Carbon dioxide snow is prepared from the liquid carbonic acid gas as it exists in high pressure tanks (Pusey, W. A.: Principles and Practice of Dermatology, New York, D. Appleton & Co.) or from "dry ice" (Bloom, David: A Simplified Method of Preparing Pencils of Carbon Dioxide Snow, *Arch. Dermat. & Syph.* **32**:105 [July] 1935). The freezing is usually carried out for a period of five to ten seconds at the first application. Subsequent applications with increased pressure or greater duration depend on the amount of destruction desired and the degree of involution resulting from the previous application. The only danger in this method is overtreatment, but if the first application is cautiously given this will not take place. This method must be used with care in areas where the surfaces of the skin come in contact or where contamination may take place, as about the anogenital area. The advantage of this method over radium is the fact that less experience is required for carbon dioxide snow than for radium. Then, too, the snow is less expensive than radium. With good technic a desirable cosmetic result may be obtained. A greater degree of scarring usually results from the electrosurgical methods.

GALACTORRHEA

To the Editor:—An obese woman, aged 54, except for moderate dyspnea and palpitation associated with a chronic myocarditis, has enjoyed good health in recent years. Her complaint now is an amenorrhea of five and one-half months' duration, morning nausea and a profuse milky secretion from both breasts. She supposes that she is pregnant. Pertinent facts in the past history are as follows: Her menstrual periods have always been normal, from the menarche at the age of 14 until five years ago, when she had an asymptomatic menopause, the menses gradually becoming scanty and finally ceasing altogether. About eighteen months ago menstruation was resumed and was regular, of the twenty-eight day type, with no skipped periods or bleeding between periods. Each period was of four to five days' duration. There was a scanty leukorrhea in the intermenstruum. She has had ten pregnancies, only two of which reached term, and both of these babies were small and died in the first few weeks of life. The patient is 5 feet 6 inches (168 cm.) in height; she weighs 220 pounds (100 Kg.). She is edentulous. The throat is normal. The thyroid is not palpable. There are no tremors. The skin is dry. The finger nails are brittle. There is eczema of the external auditory canals. The chest is clear. The heart shows moderate hypertrophy. The arteries are just palpable at the wrist. The blood pressure is 122 systolic, 76 diastolic. Both breasts are large, firm and present no nodules. The nipples are reddened and not retracted, and an abundant milky fluid is easily expressed from each. The abdomen is very obese and pendulous. (The patient thinks this has enlarged recently as a result of the supposed pregnancy.) Pelvic examination is difficult because of the patient's size. The cervix is firm and lacerated and presents a small amount of mucoid discharge. The fundus is retroverted, slightly enlarged to about the size of a lemon. No masses were palpated in the adnexa, but this part of the examination was very difficult. The extremities are obese but slender at the ankles and wrists. Varicose veins are present. Blood examination revealed hemoglobin 90 per cent; red blood cells 4,950,000, white blood cells 7,000. The Wassermann reaction is negative. The urine is entirely normal. I am unable to make a diagnosis in this case and should like any suggestions for further studies that might be made. I am particularly interested in the cause of the lactation. My opinion is that the cause is in the field of endocrinology, but I am unable to locate the cause.

M.D., Michigan.

ANSWER.—The correspondent is probably correct in the opinion that the condition belongs in the class of endocrinopathy. It is an old observation that milk may appear in the breasts during puberty, during menstruation, at the menopause and also if there are fibroids. This renders the sign unreliable in the diagnosis of pregnancy. Galactorrhea, however, is rare in the menopause and so also is a return of the regular periods such as occurred in this case. Naturally, one thinks at such times of some disturbance of the glandular apparatus, and as the two organs mostly involved in the milk secretion are the ovaries and the hypophysis (galactin), suspicion rests on them. A granulosa cell tumor of the ovary or a tumor of the hypophysis might produce the symptoms. The shape of the woman and her history indicate pituitary dysfunction and some dysthyroidism. Investigation is recommended along these lines and it might also be interesting to make an Aschheim-Zondek test. The return and regularity of the periods point rather strongly to the ovary; their cessation leaves the hypophysis as the probable cause. Abdominoscopy might visualize the two ovaries, roentgen examination the pituitary.

Recently McNeile has recommended camphor in oil, 0.1 Gm. daily, intramuscularly, for three or four days, to restrain the milk secretion after delivery. It might be tried in this case. If the patient is not pregnant, administration of estrogenic substance may have some effect on the galactorrhea.

PAIN AND TENDERNESS OF BREAST

To the Editor:—A married woman, aged 28, has two children, both delivered normally, the last one four and one-half years ago. For the past three years she has been aware of an annoying sensation and tenderness to touch in her right breast. This at first was very slight but has steadily increased so that the breast has been tender and somewhat painful for the last three weeks. The left breast is normal on examination and also subjectively. The right breast on palpation suggests to the fingers a mass of "knots and cords" throughout. These are quite tender to touch. There is no disturbance in the contour of the breast; the nipple is normal, the axilla is free of glands and there is no history of a discharge from the breast. Pain is not related to the menses. What would you advise in this case and, if it is cystic mastitis, have you any knowledge of the efficacy of theelin?

M.D., New York.

ANSWER.—The case raises three main possibilities: (1) unilateral mazoplasia, (2) cystic disease of the breast, either in its pure form or complicated by epithelial neoplasia, and (3) unilateral diffuse fibro-adenomatosis.

As regards the first possibility, it is possible but unusual for mazoplasia to affect only one breast. The fact that the pain is not related to the menstrual period is further evidence against this diagnosis. Cystic disease of the breast is possible in this case. The evidences against cystic disease are the conditions found on palpation. Usually in the breast of pronounced cystic disease there should be present one or more discrete, circumscribed, movable masses. When the cysts are sufficiently small, these conditions are absent. From the description given, the diagnosis of fibro-adenomatosis is most likely. Transillumination might help to distinguish between cystic disease and solid fibro-adenomatosis. The age of the patient favors the latter diagnosis. Tenderness also is more common in fibro-adenomatosis than in cystic disease.

The procedure to be adopted depends on the diagnosis. If the lesion is diffuse throughout the breast and there is no localized mass, it is safe to treat the patient conservatively and to defer operation. The lesion should be watched closely and, at the first sign of localization, an exploratory operation is immediately indicated. If the breast is a fibro-adenomatosis, no operation is indicated. Not infrequently in these cases it becomes necessary to perform an exploratory incision and biopsy in order to establish the true diagnosis of the lesion as between cystic disease and fibro-adenomatosis. This procedure, however, is usually deferred as long as the lesion is diffuse and there is no localized mass.

Theelin and other estrogenic preparations have been used in the treatment of painful breasts, and relief of pain has been reported. It is important to point out, however, that the relief of pain from these agents is limited to a certain group of cases, notably those in which the pain is bilateral and is related to the menstrual periods. It is rare to find relief of pain when the periods are either normal or long and very common when the periods are of short duration.

USE OF FROZEN MILK IN INFANT FEEDING

To the Editor:—We are anxious to have your opinion on the use in infant feeding of milk that has been frozen. Does this frozen milk, if heated to the boiling point and prepared for feeding in the usual manner, produce an injurious effect on the otherwise normal healthy baby? Do you believe that heating the frozen milk to the boiling point causes the milk to return to a suspension that can be taken, without ill effects, by the average infant? Any information you can give us will be greatly appreciated.

ANN SULLIVAN, Director Home Economics, Washington, D. C.

ANSWER.—Milk as it freezes undergoes considerable physical changes, which are more pronounced the longer it remains frozen. Under no conditions is thawed milk exactly the same in every respect as unfrozen milk. Milk freezes at about 0.55 C., below the freezing point of water, but it does not freeze completely, since the water freezes first and the solids form a more highly concentrated solution with a depression of the freezing point. Ice is formed at the bottom and sides of the vessel and a funnel-shaped cavity in the center is filled with liquid. The ice forms two layers, one of cream, the other of skim milk. The water thus freezes at first at the outside on the wall of the vessel, and the solids are forced toward the center, forming a more concentrated solution and this freezes at a lower temperature.

The fat rises and is partially churned when the milk freezes. The natural emulsion of fat is never completely restored after thawing, and the casein appears in flakes rather than in the original colloid condition. The fat content of the upper layers may be three times as high as the original amount, and much higher in the central portion of the milk than at the periphery. The emulsion of fat is destroyed more rapidly than the colloidal condition of the casein. Other changes in the protein when milk is held for a considerable period at a temperature of zero centigrade consists of a proteolysis of the casein and lactalbumin. Milk that has been frozen and then thawed is said to decompose more rapidly than otherwise. The thawed milk has a higher acidity than the original milk. Even at freezing temperature some bacteria continue to grow. It will not sour, because the lactic bacilli do not grow at this temperature, but certain putrefactive and pathogenic organisms do.

Vomiting and not infrequently diarrhea may follow the feeding to infants of milk that has been frozen. The main cause of this is probably the separation of the fat, and even when the milk is thawed the fat globules coalesce and form a thick layer of butter fat, which may cause a gastro-intestinal upset. If the process of thawing goes on slowly in a cool room, fewer changes remain in the fat emulsion.

FORMULA FOR ESTIMATING BASAL METABOLISM

To the Editor:—Somewhere I have read that the basal metabolic rate can be estimated by a rather simple formula involving the blood pressure; also a method involving the respiratory quotient. How are these estimations made? Are they sufficiently accurate to be of value? Please omit name.

M.D., Ohio.

ANSWER.—J. Marion Read (Correlation of Basal Metabolic Rate with Pulse rate and Pulse Pressure, THE JOURNAL, June 17, 1922, p. 1887) was the first to suggest the clinical use of a formula based on pulse rate and pulse pressure for the estimation of the basal metabolic rate. His first formula was

$$\text{B. M. R.} = 0.683\ (\text{P. R.} + 0.9\ \text{P. P.}) - 71.5$$

in which P. R. is the basal pulse rate and P. P. the basal pulse pressure. This formula was modified slightly by him in 1924 (Basal Pulse Rate and Pulse Pressure Changes Accompanying Variations in the Basal Metabolic Rate, *Arch. Int. Med.* **34**:553 [Oct.] 1924) and again by Read and Barnett in 1934; in the latter report (Read, J. M., and Barnett, C. W.: New Formulae for the Prediction of Basal Metabolism from Pulse Rate and Pulse Pressure, *Proc. Soc. Exper. Biol. & Med.* **31**:723 [March] 1934) they suggested two formulas, one for each sex:

$$\text{For men, cal. sq. m. per hour} = \frac{(\text{P. R.})\ (\text{P. P.})}{200} + 27$$

$$\text{For women, cal. sq. m. per hour} = \frac{3\ (\text{P.R.})\ (\text{P.P.})}{700} + 24$$

Rabinowitch has recently presented a detailed criticism of this method of estimating the basal metabolism (Rabinowitch, I. M.: Prediction of Basal Metabolism from Pulse Pressure and Pulse Rate, *Canad. M. A. J.* **32**:135 [Feb.] 1935). He concludes that practically it is possible to predict the rate of metabolism with a reasonable degree of accuracy in only about 50 per cent of the cases, provided the pulse rate and pulse pressure are obtained under the same strict basal conditions as are necessary for the determination of the basal metabolic rate itself.

Conroe has also recently investigated the clinical value of attempting to estimate the basal metabolic rate from the pulse rate and pulse pressure. He too feels that the accuracy of the prediction is not sufficiently great to render the method a substitute for actual measurement of the basal metabolic rate by indirect calorimetry. However, if one wishes to use such an approximation, Conroe gives a convenient nomogram in his paper to simplify the calculation involved (Estimation of Basal Metabolic Rate from Pulse Rate and Pulse Pressure, *Am. J. M. Sc.* **190**:371 [Sept.] 1935).

ISOPROPYL ALCOHOL

To the Editor:—I would appreciate your giving me the latest information on isopropyl alcohol: its chemical properties, pharmacologic action, toxicology and therapeutics, with special attention as to its antiseptic properties and whether it can be used as a sterilizing agent for the hands and instruments.

M.D., Texas.

ANSWER.—Isopropyl alcohol, or dimethyl carbinol, $CH_3.CHOH.CH_3$, is a homologue of ethyl alcohol isomeric with normal propyl alcohol. It is a colorless liquid having a weak alcoholic odor somewhat resembling that of acetone. It is similar in most of its properties to ethyl alcohol.

A paper giving a synopsis of the then available data on the pharmacology of isopropyl alcohol appeared in the *Journal of Laboratory and Clinical Medicine*, March 1923, p. 382. The toxicology of the substance has been discussed by Macht (*J. Pharmacol. & Exper. Therap.* **16**:1 [Aug.] 1920). The British Pharmaceutical Codex (1934) contains the following statement in regard to the actions and uses of isopropyl alcohol: "Isopropyl alcohol is twice as toxic as ethyl alcohol when given intravenously to cats, but it is sufficiently nontoxic for external and oral administration in small amounts. Inhalation of its

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vapor has not been found to cause the defects on vision associated with methyl alcohol. Isopropyl alcohol is not potable and its ingestion produces a form of intoxication which resembles that produced by ethyl alcohol. In concentrations up to 50 per cent, applied externally to open wounds it allows healing to take place normally. It has been used for skin sterilization, also in antiseptic solutions for the throat. Isopropyl alcohol may be used for drying nitrocellulose, sugars, starches, animal or vegetable tissues, and for dehydrating histological specimens. It is used in cosmetics and the cheaper varieties of perfume and culinary essences."

We are informed that at the present time the Council on Pharmacy and Chemistry is considering the question of admitting isopropyl alcohol to New and Nonofficial Remedies as an agent useful in removing creosote from the skin and as a germicide for the sterilization of the skin as well as needles and syringes, particularly in connection with the administration of insulin.

In his report on the evidence submitted in favor of the use of isopropyl alcohol as a germicide, the Council's referee called attention to the lack of evidence for the effectiveness of the substance against the spores of Bacillus Welchii, B. tetani and B. anthracis. Although it was deemed a remote possibility that these spores might contaminate glass syringes in common use, the possibility of such contamination could not be denied. Hence, evidence on this point was requested but was not received. However, the evidence which was received did support the claim that isopropyl alcohol may be used for the reduction of the number of vegetative forms of bacteria on the skin, on hypodermic needles and on syringes. This evidence indicated that 10 per cent solutions of isopropyl alcohol are not germicidal, 20 per cent solutions are germicidal in some instances, and solutions containing 30 per cent or more of isopropyl alcohol regularly kill Staphylococcus aureus in five minutes at 20 C.

A review of experimental work on the germicidal properties of isopropyl alcohol by D. H. Grant was published in the *American Journal of the Medical Sciences* (**166**:261 [Aug.] 1923).

TREATMENT OF HYPERTRICHOSIS

To the Editor:—What are the various treatments and their relative status for hypertrichosis in the female? I am inquiring about a woman, aged 23, presumably in excellent health, but with coarse hair on her face, chin and upper lip, arms and body. She had a thyroidectomy three and a half years ago, her basal metabolism now being plus 4. She had a tonsillectomy in 1932 and an appendectomy five months ago. She has an infantile uterus, for which she has received five injections of Progynon B in oil. She has an infection of both antrums. A physician told her that she has a tumor of the adrenal glands. How can one establish a diagnosis of this type and, if so, what are the results of adrenal surgery in cases of this type? Kindly omit name and address.

M.D., Wisconsin.

ANSWER.—Hirsutism in the female may develop as a result of any one of several conditions. Among these are arrhenoblastoma of the ovary and certain tumors of the adrenal cortex; disturbances of the anterior pituitary may also be involved, although the rôle of the pituitary in the growth of hair is as yet poorly defined. The differential diagnosis may be difficult. R. T. Frank (*Proc. Soc. Exper. Biol. & Med.* **31**:1204 [June] 1934) has reported two cases of adrenal carcinoma in which tremendous amounts of estrogenic substance were excreted in the urine; this may possibly serve in differential diagnosis, as such amounts of estrogenic substance are not otherwise known to be excreted except during pregnancy. A discussion of arrhenoblastoma of the ovary by Emil Novak appears in the *American Journal of the Medical Sciences* (**187**:599) [May] 1934). Removal of such tumors of the ovary is reported to lead to regression of symptoms. Surgery on the adrenal glands should not be undertaken unless definite tumor exists; subtotal adrenalectomy has been proposed for the treatment of hirsutism in the absence of tumor, but there is no justification for this procedure.

CORRECTION OF POSTURE

To the Editor:—Will you give me the name and address of the best place to take care of correction of posture? Please do not publish my name.

M.D., New Jersey.

ANSWER.—Poor posture may result from faulty habits, but not infrequently it is secondary to organic disorders that lower the vitality of the individual. Gastro-intestinal disturbances, chronic infections of the nose and throat, defects of vision, malnutrition and fatigue may all be contributory factors.

Organic changes within the spine itself, such as those due to tuberculosis or to growth disturbances of the type described as vertebral epiphysitis, may lead to permanent structural changes characterized by round shoulders or humped back. For this reason every case of chronic poor posture should be carefully examined by a physician and roentgenograms of the spine taken before an attempt is made to correct the deformity.

The responsibility for directing the care of patients who have poor posture has been delegated to the orthopedic surgeon. Practically every orthopedic surgeon has available the services of a well trained physical therapist who understands the problem of prevention or correction of static deformities of the spine and extremities. A list of the men specializing in orthopedic surgery in any locality can be supplied to the physician requesting it by any of the following men:

Secretary of the Section on Orthopedic Surgery of the American Medical Association, Dr. Robert V. Funsten, University, Va.
Secretary of the American Academy of Orthopaedic Surgeons, Dr. Philip Lewin, 104 South Michigan Avenue, Chicago.
Secretary of the American Orthopaedic Association, Dr. Ralph K. Ghormley, 102 Second Avenue S.W., Rochester, Minn.
Secretary of the Orthopaedic Section of the Pan-American Medical Association, Dr. Edward L. Compere, 970 East Fifty-Ninth Street, Chicago.

MUSCLE FATIGABILITY

To the Editor:—A man, aged 33, 5 feet 11 inches (180 cm.) in height, of the large-boned type, weighing 205 pounds (93 Kg.) complains of excessive fatigue. He is emotionally stable. His weight was 230 pounds (114 Kg.) four months ago, at which time he was definitely conscious of overweight and had the beginning of his fatigue. By diet and exercise, the weight was gradually dropped to its present level. It seemed that after his weight began to drop below 220 pounds (100 Kg.) his fatigue progressively increased. Now he complains of being tired at all times; at the end of the day's office work he can barely keep on his feet and he looks it. The blood pressure is normal, the basal metabolism is minus five (checked by different individuals and the record taken one month apart) and the blood sugar is 80. Everything else is normal, and I have had my observations checked by two good internists. Thyroid was suggested for a try out and I gave 2 grains (0.13 Gm.) of a standard preparation three times daily for four weeks. This had no apparent effect on the fatigue but did increase perspiration and slightly accelerated the weight loss. The patient says he does not seem to have much choice—that when his weight is way up he feels "puffed up like a swelling-toad and has a little shortness of breath," and when his weight is where it is now he has fatigue that he cannot overcome. Suggestions will be gratefully received.

M.D., Virginia.

ANSWER.—The data are far too meager on which to base a diagnosis. Muscle weakness and fatigability are due to many causes, and the differential diagnosis of the various conditions is usually quite difficult. Myasthenia gravis, as well as other conditions, for example Addison's disease, should be considered. On the other hand, the patient may have simple fatigability. A suggestive symposium on some of the various forms of myopathy and the results of treatment in the different groups with fatigability was recently presented by Moersch, Boothby, Wilder and their associates (*Proceedings of the Staff Meetings of the Mayo Clinic* **9**:589 [Oct. 3] 1934) which might furnish suggestions appropriate for the patient.

BURNING SENSATION IN MOUTH

To the Editor:—Mrs. G., aged 64, complains of a severe burning sensation in the mouth, of varying degree of intensity, and apparently accentuated by certain foods, notably fruits. She cannot eat any of the citrus fruits because of the burning when attempts are made to eat them. Examination shows sclerotic, thrombosed or varicosed areas on the sides and under parts of the tongue, attended by redness about these areas and on the inside of the lower lip. There are no teeth, both upper and lower plates being worn. The buds on the back of the tongue are enlarged. The reaction, as determined by the urine, has been alternated between acid and alkaline without any appreciable change in the complaint. The blood pressure is 150 systolic, 90 diastolic. Treatment has consisted of potassium chlorate both in solution and as troches, Vince and other perborates, potassium iodide, and general systemic tonics. The condition has remissions and exacerbations without apparent relation to the diet. A Wassermann test has not been done. If you can help me out from this meager description it will be appreciated.

M.D., Ohio.

ANSWER.—Elderly patients complaining of burning sensations on the tongue and mucous membranes of the mouth, accentuated by ingestion of certain types of food, are vexatious problems, as it is difficult to disclose even a trifling source of irritation. As in this case, there usually are regions of the mucous membranes that have undergone various types of retrograde change. However, careful search should be made for some source of irritation. The artificial dentures are not above suspicion, the irritating effect of them being ascribed partly to the rubber content of the denture bases, partly to the heat insulating effect of the closely applied plate, and partly to the mechanical effect of the denture surface, especially if it is not absolutely clean. The dentures should be painstakingly cleaned frequently, in this case after each meal. During the acute

exacerbations it may be desirable to wear the dentures as little as possible, perhaps not at all. There are no more suitable mouth washes than the flavored perborates. Other than this the treatment is purely symptomatic and designed merely to relieve pain and uncomfortable sensations.

HERPES AND CHICKENPOX

To the Editor:—In answer to a question in Queries and Minor Notes on the treatment of herpes (THE JOURNAL, January 4, p. 65) the statement is made that herpes simplex, the cold sore, is truly related to the virus of chickenpox, a fact discovered by Professor Bokay many years ago. I believe this to be an error that should be corrected. It probably meant that the virus of herpes zoster is related to that of chickenpox (von Bokay, J.: Ueber den ätiologischer Zusammenhang der Varizellen mit gewissen Fällen von Herpes Zoster, *Wien. klin. Wchnschr.* **22**: 1323, 1909).

E. WILLIAM ABRAMOWITZ, M.D., New York.

ANSWER.—It is true that von Bokay's original observations, which date back to 1888, related chickenpox to herpes zoster and not to herpes simplex. It is customary to differentiate strictly between these two eruptions. Herpes simplex produces no immunity and tends to recur indefinitely; neuralgic pains are absent; it leaves no scar; its virus is easily transmissible. The opposite of all this is true of herpes zoster. Nevertheless, both are admittedly virus diseases due to an irritative, infectious or toxic lesion in the posterior root ganglion, in the posterior column of the cord as well as in the peripheral nerves. In herpes simplex, lesions have been found in the sensory extramedullary ganglions supplying the area involved (Ormsby: Diseases of the Skin, Philadelphia, Lea & Febiger, 1934). Essentially both lesions are due to efferent nerve impulses liberating a histamine-like substance in the skin, which in turn is responsible for the vesicle and the surrounding destruction of tissue. In cases of herpes simplex occurring with pneumonia or cerebrospinal meningitis, degenerative and inflammatory changes were found by Howard and by Mallory and Wright in the ganglionic centers supplying the area. This virus disease is neurotropic; the virus disease of herpes simplex is closely related to epidemic encephalitis.

McCORMICK APPARATUS FOR ANALGESIA IN OBSTETRICS

To the Editor:—In the Dec. 21, 1935, issue of THE JOURNAL an article appeared concerning the modified ether-oil rectal analgesia by Drs. Gwathmey and McCormick. I should like information as to where the McCormick apparatus for the instillation of the analgesia may be purchased, with information as to price.

JAMES R. JANNEY (fourth year student), Detroit.

ANSWER.—The McCormick apparatus for the rectal instillation of ether in oil is sold by the William H. Armstrong Company, Indianapolis, price $20. The Asepto-syringe (4 ounce) is made by Becton, Dickinson & Co., Rutherford, N. J., price $1.90.

EFFECTS OF LONG CONTINUED USE OF PHENOBARBITAL

To the Editor:—What are the effects of the long continuous use of phenobarbital, say from 3 to 5 grains (0.2 to 0.3 Gm.) a day? What would be the effects on the sexual powers?

M.D., Texas.

ANSWER.—Drowsiness and languor are symptoms of overdosage; dermatitis is a not uncommon complication. When phenobarbital is given in epilepsy, the indication is to lessen the dose or, if dermatitis occurs, to interrupt administration until it clears. Sexual power may share in the depression.

DIPHTHERIA TOXIN FOR SCHICK TESTS

To the Editor:—Kindly advise me regarding the reliability of "Diphtheria Toxin diluted ready for use in peptone buffered diluent" for Schick testing.

WALTER J. SIEMSEN, M.D., Chicago.

ANSWER.—The product in question may be regarded as reliable, provided it is approved by the United States Public Health Service.

NO RECORDS OF ALLERGIC SENSITIVITY TO TRYPARSAMIDE

To the Editor:—I am interested in securing information and references about anaphylactic reactions to tryparsamide. I have a case showing a definite allergic sensitivity to tryparsamide.

M.D., Nebraska.

ANSWER.—In many thousands of cases there are no records of allergic reactions with tryparsamide. The case reported is therefore unusual.

Medical Examinations and Licensure

COMING EXAMINATIONS

ALASKA: Juneau, March 3. Sec., Dr. W. W. Council, Juneau.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written examination for Group B applicants* will be held in various cities throughout the country, March 14. *Oral examination for Group A and B applicants* will be held in Kansas City, Mo., May 11-12. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Written examination and review of case histories of Group B applicants will be held in various cities of the United States and Canada, March 28. *Applications must be filed not later than February 28.* Oral, clinical and pathological examination of all candidates will be held in Kansas City, Mo., May 11-12. *Applications must be received not later than April 1.* Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Kansas City, Mo., May 11 and New York, Sept. 26. *All applications and case reports must be filed sixty days before date of examination.* Asst. Sec., Dr. Thomas D. Allen, 122 S. Michigan Ave., Chicago.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Kansas City, Mo., May. *Applications should be filed with the secretary before April 15.* Sec., Dr. Fremont A. Chandler, 180 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Kansas City, Mo., May 9. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: Kansas City, Mo., May 9. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: St. Louis, Mo., May 8-9. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Kansas City, Mo., May 8-10. Sec., Dr. B. R. Kirklin, Mayo Clinic, Rochester, Minn.

ARIZONA: *Basic Science.* Tucson, March 17. Sec., Dr. Robert L. Nugent, Science Hall, University of Arizona, Tucson.

CALIFORNIA: Los Angeles, March 9-12. *Reciprocity.* Los Angeles, March 18. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Regular.* Hartford, March 10-11. *Endorsement.* Hartford, March 24. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Homeopathic.* Derby, March 10. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

IOWA: Des Moines, Feb. 25-27. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MAINE: Portland, March 10-11. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MASSACHUSETTS: Boston, March 10-12. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413 State House, Boston.

NATIONAL BOARD OF MEDICAL EXAMINERS. *Parts I and II.* May 6-8, June 22-24, and Sept. 14-16. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEW HAMPSHIRE: Concord, March 12-13. Sec., Board of Registration in Medicine, Dr. Charles Duncan, State House, Concord.

OREGON: *Basic Science.* Portland, March 21. Sec., Mr. Charles D. Byrne, University of Oregon, Eugene.

PUERTO RICO: San Juan, March 3. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

WEST VIRGINIA: Charleston, March 16. State Health Commissioner, Dr. Arthur E. McClue, Charleston.

WISCONSIN: *Basic Science.* Madison, April 4. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee.

California October Examination

Dr. Charles B. Pinkham, secretary, California State Board of Medical Examiners, reports the written examination held at Sacramento, Oct. 22-24, 1935. The examination covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Forty-nine candidates were examined, 45 of whom passed and 4 failed. The following schools were represented:

PASSED School	Year Grad.	Per Cent.
College of Medical Evangelists	(1935)	83.1, 83.7, 84.3, 86.9, 87.2, 87.7
Stanford University School of Medicine	(1935)	82.8, 83.9, 89.9, 89.9
University of California Medical School	(1934) (1935)	88.7, 86.2, 91.1
University of Southern California School of Medicine	(1935)	83.6, 83.6
University of Colorado School of Medicine	(1935)	84
Loyola University School of Medicine	(1935)	86.6
Northwestern University Medical School	(1935)	75.8, 82.3, 84.7, 88, 92.1*
Rush Medical College	(1927) (1935)	80.1, 76.2, 86.2
University of Illinois College of Medicine	(1935)	80.8, 86.1*
State University of Iowa College of Medicine	(1934)	81.7
Tulane University of Louisiana School of Medicine	(1933)	89.2
University of Maryland School of Medicine and College of Physicians and Surgeons	(1934)	84.9
Boston University School of Medicine	(1932)	81.6
Harvard University Medical School	(1933)	87.6
University of Michigan Medical School	(1933)	84
University of Minnesota Medical School	(1935)	84.9*
Washington University School of Medicine	(1935)	85.1
Creighton University School of Medicine	(1935)	80.9, 85.2
University of Oregon Medical School	(1935)	84.7
Hahnemann Medical Col. and Hospital of Philadelphia	(1934)	86.3
Medical College of Virginia	(1934)	82.2
University of Toronto Faculty of Medicine	(1935)	89.9

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Hamburgische Universität Medizinische Fakultät, Hamburg	(1923)	79.6†
Schlesische Friedrich-Wilhelms-Universität Medizinische Fakultät, Breslau	(1934)	84.2‡
Vereinigten Friedrichs-Universität Medizinische Fakultät, Halle-Wittenberg	(1925)	80.4‡
Université de Genève Faculté de Médecine	(1922)	77.6‡

School	FAILED	Year Grad.	Per Cent
University of California Medical Department		(1904)	51.7
Meharry Medical College		(1934)	68.1
Johann Wolfgang Goethe-Universität Medizinische Fakultat, Frankfurt-am-Main		(1933)	62.9‡
Regia Università degli Studi di Modena, Facoltà di Medicina e Chirurgia		(1932)	73.4

Thirteen physicians were licensed by reciprocity and 4 physicians were licensed by endorsement from October 17 through December 18. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado School of Medicine		(1927)	Ohio
University of Illinois College of Medicine		(1930)	Missouri
University of Kansas School of Medicine		(1933)	Kansas
Johns Hopkins University School of Medicine		(1921)	Missouri
Boston University School of Medicine		(1933)	Mass.
Harvard University Medical School		(1927)	Indiana
Detroit College of Medicine and Surgery		(1930)	Michigan
University of Michigan Medical School		(1925)	Michigan
University of Minnesota Medical School		(1926)	Minnesota
Washington University School of Medicine		(1934)	Missouri
Creighton University School of Medicine	(1931) Neb., (1932)		New Jersey
University of Pennsylvania School of Medicine		(1929)	Penna.

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Colorado School of Medicine		(1932)	N. B. M. Ex.
University of Illinois College of Medicine		(1932)	N. B. M. Ex.
Kansas City Hahnemann Medical College, Missouri		(1912)	U. S. Army
Ohio-Miami Medical College		(1914)	U.S.P.H.S.

* This applicant has completed the medical course and will receive the M.D. degree on completion of internship.
† Verification of graduation in process. License has not been issued.
‡ Verification of graduation in process.

Puerto Rico September Report

Dr. O. Costa Mandry, secretary, Board of Medical Examiners of Puerto Rico, reports the written and practical examination held in San Juan, Sept. 3-7, 1935. The examination covered 19 subjects and included 80 questions. An average of 75 per cent was required to pass. Sixteen candidates were examined, 15 of whom passed and 1 failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent.
Georgetown University School of Medicine	(1920) 83.6, (1932)		78.6
Howard University College of Medicine		(1935)	82.1
St. Louis University School of Medicine		(1935)	83.8
University of Cincinnati College of Medicine		(1934)	84.2
Western Reserve University School of Medicine		(1935)	87.1
Hahnemann Medical Col. and Hospital of Philadelphia		(1935)	81.2
Temple University School of Medicine		(1935)	81.2
Woman's Medical College of Pennsylvania		(1927)	79.5
Medical College of Virginia	(1934) 89.3,	(1935)	86.5
University College of Medicine, Virginia		(1905)	78.1
Université de Paris Faculté de Médecine		(1933)	83.3*
Universidad Nacional Facultad de Medicina, México, D. F.		(1934)	75.7
Universität Bern Medizinische Fakultät		(1934)	84.8

School	FAILED	Year Grad.
Hahnemann Medical College and Hospital of Philadelphia		(1909)

* Verification of graduation in process.

South Carolina November Examination

Dr. A. Earle Boozer, secretary, State Board of Medical Examiners of South Carolina, reports the examination held at Columbia, Nov. 12, 1935. The examination covered 17 subjects. An average of 75 per cent was required to pass. Three candidates were examined, all of whom passed. Five physicians were licensed by reciprocity after an oral examination. The following schools were represented:

School	PASSED	Year Grad.	Per Cent.
Tulane University of Louisiana School of Medicine		(1935)	75
Marion-Sims College of Medicine, Missouri		(1899)	78
Medical College of the State of South Carolina		(1935)	80

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University School of Medicine		(1923)	N. Carolina
University of Georgia School of Medicine		(1934)	Georgia
Jefferson Medical College of Philadelphia		(1933)	N. Carolina
University of Tennessee College of Medicine		(1933)	Tennessee
University of Virginia Department of Medicine		(1931)	Virginia

Book Notices

Pediatric Treatment: A Manual of the Treatment of the Diseases of Infants and Children Designed as a Reference Work Especially for the General Practitioner and Physicians Entering the Field of Pediatrics. By Philip S. Potter, A.B., M.D., F.A.A.P., Attending Pediatrician to the Berkeley General Hospital, Berkeley, California. Cloth. Price, $5. Pp. 578. New York: Macmillan Company, 1935.

This book is well indexed but is not illustrated. Illustrations demonstrating such manipulations as manual expression of breast milk, applications of a yarn truss, and passage of a nasal catheter for gastric lavage or gavage in infants would enhance the descriptive value. A short well selected pertinent bibliography appends each chapter. As intimated by the author in the preface and as apparent from a perusal of the book, it is elementary, the A B C of pediatric therapy, written especially for the general practitioner but particularly suited for young men starting out direct from the hospital. The treatment is mainly that used in the home, which is of course somewhat different from that employed in the hospital by interns. The first five chapters are devoted to general therapeutic procedures, including emergency treatment (poisoning, with antidotes, wounds and so on) and pharmaceutics. Some attention is given here to nursing procedures, so that the physician can actually instruct the mother or attendant rather than order the trained nurse, as in the hospital. The chapter on infant feeding is rather brief, although general principles and specific milks are mentioned. It would be advisable for the reader to consult more extensive works in this rather specialized field. Diets for older children are given in detail. They are conservative, most new foods being started relatively late, so as to play safe, because of the considerable difference of opinion as to when various foods may be introduced. After the sections on nutrition, metabolism and their disorders, and disease and abnormalities of the new-born, the treatment of disease is taken up by systems, then treatment of communicable and infectious diseases, and finally a section on additional prescriptions relating to body systems. The book is essentially and principally on treatment, little space being given to symptoms and diagnosis, which is admirable in a book entitled specifically treatment, so many others of these being given over to much diagnosis.

In a general criticism of the book there seems to be a tendency to overtreat specifically instead of outlining general principles, many trained pediatricians not using nearly so extensive a therapeutic armamentarium. The prescriptions are often somewhat complicated; much simpler administration of fewer drugs probably would suffice. Some drugs are advised that some good pediatricians frown on, such as castor oil, mild mercurous chloride and silver salts in the nose. For example, in the treatment of colds, cathartics, hot foot baths, hot drinks (try to get young children to take them), Dobell's solution, menthol in petrolatum, or mild protein silver in the nose, a rather complicated prescription, and in cervical adenitis ointments are mentioned but their psychic value is not. The reviewer and his immediate preceptors use much simpler therapy, except where it is necessary for the mother's psychic rather than the child's physical benefit, but maybe he is wrong. Proprietary names are given to many drugs and foods. There is not much space or emphasis devoted to psychic therapy or to mental hygiene, behavior disturbances and the like, which make up considerable of pediatric practice. Generally speaking it is a reasonably good therapeutic textbook of pediatrics for young general practitioners, although it makes treatment more complicated than is actually encountered in pediatric practice.

Der Geburtstod (Mutter und Kind). Von Dr. Sigismund Peller. Paper. Price, 5 marks. Pp. 110. Leipzig & Vienna: Franz Deuticke, 1936.

This monograph consists mainly of extensive statistical records of the mortality of mothers and babies throughout the world, and particularly in Vienna. While there is considerable discussion of the figures presented, the subject matter does not lend itself to a thorough review. In the first place, international statistics are not comparable, as was well proved by the Secretariat on Health of the League of Nations in Geneva. It published a chart giving sixteen reasons for the inability to compare international statistics. The larger part of this work refers to infant mortality, and the fear of depopulation is

stressed. The author starts out with the statement that nobody knows how many women die during childbirth. He guesses that from 40,000 to 50,000 die each year in Europe and that 20,000 die in the United States. (The United States census says that only about 15,000 die annually); from 6 to 8 per cent of the babies die aborning, and in spite of the enormous progress made in all branches of medicine, and of all the commissions and investigations and laws promulgated, maternal and fetal mortalities have not improved. Abortion claims a large and undiminishing number of women's lives, and hospitalization has not improved the conditions. Maternal mortality the world over varies from 2 to 18 per thousand. Leningrad has the lowest, India the highest; the white race less than the colored; mortalities are generally higher in the city than in the country (abortion); of cities, Berlin has the highest mortality in Europe, excluding abortion, while they are included in the other cities. The mortality of babies can be reduced not by better care during labor but by improving the social conditions of gravidae. The author recommends pregnancy hospitals. While much can be done for the mother with good antepartum care, asepsis and reduction of unnecessary operating, more can be done by combating criminal abortions and by recognizing that therapeutic abortions, when sensibly indicated and properly performed, may actually reduce both fetal and maternal mortality.

The Management of Colitis. By J. Arnold Bargen, M.D., F.A.C.P., Assistant Professor of Medicine, The Mayo Foundation, Rochester, Minn. National Medical Monographs. Edited by Morris Fishbein, M.D. Cloth. Price, $3. Pp. 234, with 94 illustrations. New York: National Medical Book Company, Inc.: Doubleday, Doran & Co., Inc., 1935.

This is a short monograph discussing chronic ulcerative colitis, amebiasis, tuberculous colitis and mucous colitis. It is written in excellent style with a clear presentation of many controversial subjects. The material for the book is based on the author's and his colleagues' material gathered at the Mayo Clinic. In the opening chapter the anatomy, embryology and physiology of the colon are discussed with particular reference to their relationship with pathologic developments. The usual methods of study of a patient ill with diseases of the large intestine are mentioned, with emphasis on the important facts to be obtained. The chapter on chronic ulcerative colitis is lengthy, as one would expect from the author, because of his unusual grasp of the subject. He recapitulates his clinical and experimental evidence for a specific diplostreptococcus as an etiologic factor causing this disabling disease. His description of the pathologic features of the disease is excellent. The chapter on amebiasis contains a large number of observations of the author and of others. He suggests the use of emetine, organic arsenicals, such as carbarsone, and chiniofon, in addition to other methods of therapeutic approach to this stubborn disease. The chapter on tuberculous colitis is briefly but adequately discussed. The chapter on mucous colitis discusses the etiologic factors concerned in a disease that is not an inflammatory process of the colon. Little has been added to what is already known clinically and therapeutically about this syndrome. The book, as a whole, reflects the ability of the author to handle in a clear and fair fashion a subject that has been controversial for the most part.

Localized Rarefying Conditions of Bone as Exemplified by Legg-Perthes' Disease, Osgood-Schlatter's Disease, Kümmell's Disease and Related Conditions. By E. S. J. King, M.D., D.Sc., M.S., Honorary Surgeon to Out-Patients, Melbourne Hospital. Cloth. Price, $7.50. Pp. 400, with 70 illustrations. Baltimore: William Wood & Company, 1935.

This monograph comprises the greater part of the material that was submitted for the Jacksonian Prize of the Royal College of Surgeons in 1933 on "The Pathology, Diagnosis and Treatment of Localized Rarefying Changes in Bone as Exemplified by Legg-Perthes' Disease, Osgood-Schlatter's Disease, Kümmell's Disease and Pathologically Related Conditions." The material was personally gathered from 160 cases chosen from a larger number encountered in hospital and private practice. The illustrations are taken from these cases. The consideration of the embryology and physiology discussed in section I has been given considerable justifiable prominence. In section II there is some overlapping, particularly with regard to hypotheses and the evidence on which these are based. Much of the evidence presented is roentgenologic and, therefore, special attention has been given to its evaluation. In many of the current articles unwarranted deductions are drawn from roentgenologic appearances unsupported by pathologic or other observations. In addition to valuable research material on the subject, the author has presented many new points of view. The book is a treat to every one interested in the subject of bone and joint physiology, pathology and surgery. It is a fine book presenting various points of view on many controversial subjects. There is a comprehensive international bibliography.

The Principles and Practice of Medicine Designed for the Use of Practitioners and Students of Medicine. Originally written by the late Sir William Osler, Bt., M.D., F.R.S. Twelfth edition revised by Thomas McCrae, M.D., Fellow of the Royal College of Physicians, London, Professor of Medicine, Jefferson Medical College, Philadelphia. Cloth. Price, $8.50. Pp. 1,196, with 22 illustrations. New York and London: D. Appleton-Century Company, Inc., 1935.

Osler's Principles and Practice of Medicine is one of the most widely known of medical books. Since 1892 it has been copyrighted fourteen times by the publishers, three times by Grace Revel Osler, and once by Britton Osler. The present edition has the same outward appearance as the early editions and does not seem to be any larger. The book has been completely reset in a new type which permits more words to the page and is perhaps more easily read. Since Osler's death in 1916, numerous important discoveries have been made and many new methods and products have been put forth. Dr. McCrae, who worked with Osler and who revised this and various previous editions, has kept out of the book things that have little or no permanent value. He has emphasized the necessity of studying the patient as a human being, as well as carefully observing all the manifestations of disease that the patient shows. While the aid that often comes from laboratory procedures and instruments is not undervalued, emphasis is placed on the training of clinicians, those physicians who learn everything possible about a patient by the use of their own senses and brains. The growth of medical knowledge has necessitated changes and additions in practically every part of this edition, especially in the discussions of diagnosis and treatment. Some sections are completely new or have been much changed. Among these are the sections on psittacosis, lymphogranuloma inguinale, undulant fever, arachnidism, purified protein derivative tuberculin, hypoglycemia, the digestive disturbances due to food allergy, narcolepsy, cysts of the lungs, aplastic anemia, agranulocytosis and Morquio's disease. The numerous subjects have been conservatively and soundly reviewed. The volume remains therefore a textbook of established knowledge, which practitioners and students alike will find of great value.

Experimentelle Untersuchungen über Amöbenruhr. 2. Teil: Die experimentell erzeugten Veränderungen und die Pathogenese der Amöbiasis. Von Prof. Dr. Richard Bieling. Beihefte zum Archiv für Schiffs- und Tropenhygiene, Pathologie und Therapie exotischer Krankheiten, Band XXXIX, Beiheft 2. Gegründet von C. Mense. Herausgegeben von P. Mühlens, Direktor des Instituts für Schiffs- u. Tropenkrankheiten, Hamburg. Paper. Price, 4.80 marks. Pp. 60, with 29 illustrations. Leipzig: Johann Ambrosius Barth, 1935.

Fulminating amebic dysentery was produced in kittens by intrarectal inoculations of bloody mucous material from infected kittens as well as with cultures of Endamoeba histolytica grown on Dobell-Laidlaw's medium. Older larger cats were infected less readily. Ulcerations started in the mucous membrane just above the anal sphincter and below the ileocecal valve spread from these points to the entire large bowel. The ulcers extended downward and outward by lysis (to the mucosa, muscularis, submucosa and serosa). The mesenteric lymph nodes as well as the blood stream may be invaded, resulting in liver abscesses. Amebic ulceration of the small bowel and stomach have never been observed in kittens. The younger the kittens, the shorter the period of incubation and the more rapid the course of the disease.

Puppies were similarly infected with similar anatomic results, but the ulcers were not as deep or as severe, the disease was more chronic and there was a greater tendency to spontaneous recovery. The ulcers began as pin point, discrete hemorrhagic areas and then coalesced. The large bowel above the anal sphincter and below the ileocecal valve seems to be the most susceptible. The ulcerations may remain limited to those two

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points, but usually the rest of the large bowel becomes involved. In dogs, amebic ulceration occasionally spreads to the small bowel and stomach. In dogs the submucosa is much more resistant to invasion by Endamoeba histolytica than in cats. Invasion of the blood stream and formation of liver abscesses were also more rare: only once did the author observe amebic liver abscesses in dogs. A dog and a cat were infected by feeding human feces containing many Endamoeba histolytica cysts. Infections of rats, guinea-pigs, rabbits and monkeys were not successful. Other workers were successful in inoculating other animals: rats (Lynch), guinea-pigs (Baetjer and Sellards as well as Chatton), rabbits (Huber and Thomson) and monkeys (Dale and Dobell as well as Walker and Sellards). Older heavier animals are quite resistant to infection with Endamoeba histolytica. Cats are never infected spontaneously nor do they show cysts, whereas dogs are spontaneously infected from infected dogs as well as in nature by ingesting human feces containing Endamoeba histolytica cysts. Dogs infected for long periods developed a true immunity and allergic reactions—skin sensitivity to intracutaneous injections of Endamoeba histolytica antigen resulting in a local edematous, hyperemic wheal. Kittens fail to do that because the disease is of short duration.

The Growth of the Surface Area of the Human Body. By Edith Boyd, Assistant Professor, Institute of Child Welfare and Department of Anatomy, University of Minnesota. With a foreword by Richard E. Scammon, Distinguished Service Professor in The Graduate Faculty, University of Minnesota. University of Minnesota, The Institute of Child Welfare, Monograph Series No. X. Cloth. Price, $5. Pp. 145, with 50 illustrations. Minneapolis: University of Minnesota Press, 1935.

This monograph is a detailed study of the accuracy of prediction of the surface area from various types of mathematical formulas based on height, weight or other measurements. Including the surface area measurements made by herself and those culled from the literature, Boyd has measurements on 1,114 individuals, including the antepartum group, for comparison of the accuracy of the various prediction formulas.

The biologic and statistical significance of the various possible formulas will be of interest to those intensively working in this field. Boyd has shown that for the antepartum and postpartum period combined the surface area can be adequately represented, on the basis of height and weight, by a self-adjusting power equation:

$$S = 3.207 W^{0.730 - 0.008 \log W} H^{0.3}$$

With this self-adjusting power equation the growth of the surface area is described in a manner similar to that of Scammon in "The Measurement of Man." It is found that growth may be represented by two asymmetrical sigmoid curves joined at about three years with inflection points at birth and puberty. The rates of growth in surface area of the parts of the body follow a developmental sequence from head to foot only during the circumpartum period.

For the postpartum period the surface area can be adequately predicted by the power equation

$$S = k\, W^a\, H^b$$

with or without the exponents restricted to exact bidimensionality according to the condition $3a + b = 2$.

Those who use the surface area method of predicting heat production (the basal metabolic rate) will be interested in knowing that the Du Bois height-weight formula is as good as any method but not statistically significantly better than the ones proposed by Meeh, Bardeen, Voit, Brody or Boyd.

Aus der Werkstatt. Von Alfred E. Hoche. Cloth. Price, 6 marks. Pp. 259. Munich: J. F. Lehmanns Verlag, 1935.

This is a collection of essays, chosen from public addresses delivered by the author, a psychiatrist, on numerous occasions since the year 1900. The material covers a wide range of interest from a psychiatric point of view and includes a great variety of subjects. The collection includes discussions on the influence of modern culture on nervous and mental health, Shakespeare and psychiatry, ennui, the shortcomings of the present psychoanalytic movement, the death of the mad king Ludwig, observations on aviation warfare, some humorous notes on currency inflation, and many other topics too numerous to mention in a brief review. This booklet is decidedly not a textbook nor will it greatly interest the general practitioner. It will, however, be a valuable addition to the library of a psychiatrist or to those interested in collateral reading of such subjects.

Principles of Bacteriology. By Arthur A. Eisenberg, A.B., M.D., Director of Laboratories, Sydenham Hospital, New York, and Mabel F. Huntly, R.N., M.A., Director of Nursing, Wesson Memorial Hospital, Springfield, Massachusetts. With annotations and a section on Microbic Variations, by F. E. Cullen, M.S., Ph.D., Professor of Bacteriology, Vocational School, Milwaukee, Wisconsin. Sixth edition. Cloth. Price, $2.75. Pp. 378, with 98 illustrations. St. Louis: C. V. Mosby Company, 1935.

This book was the outcome of the author's lectures to nurses at certain hospitals in Cleveland. He endeavored to supply certain detailed information which the student nurses were unable to find in the textbooks they were then using. The author prepared a book comprising his syllabus of lectures with additions, and written in simple language. This is the sixth edition of his book since 1918. He has made many changes, among the most important of which were in the chapter on diseases due to animal parasites. He has rewritten the discussion on the rôle of the leukocytes in infection, presenting it now from the point of view of Schilling's hemogram. He adds a brief section on the reticulo-endothelial system, the Neufeld method of sputum typing in pneumonia, brief discussions of psittacosis, brucella, and lymphogranuloma inguinale. There have been many changes also in the chapters dealing with typhoid, tuberculosis, diphtheria, meningitis and gonorrhea. The book has a number of illustrations and a glossary that is an attractive feature in the field for which the book was originally prepared.

Demonstrations of Physical Signs in Clinical Surgery. By Hamilton Bailey, F.R.C.S., Surgeon, Royal Northern Hospital, London. Fifth edition. Cloth. Price, $6.50. Pp. 287, with 341 illustrations. Baltimore: William Wood & Company, 1935.

This little volume is richly illustrated, most of the pictures being sharply and accurately explanatory of the points involved. A number of excellent color plates are included. The book is much more ambitious than its name implies, as it is an attempt to cover the field of surgical diagnosis in an abbreviated manner, including not only physical signs but also points in the history and an analysis of the patient's complaints. The author has indeed succeeded in collecting an imposing list of signs in surgical diagnosis. The only adverse criticism is that their value is in many cases not sufficiently discussed. To many of the signs are attached names which in a surprisingly high percentage are not associated with them, at least in the mind of an American surgeon. Furthermore, in a large number of cases the signs go under different names in other parts of the world. In many cases descriptions of signs and symptoms are given which, at least in the opinion of most surgeons today, are of little value. Few surgeons today would admit that adhesions about the appendix can be diagnosed by the referred pain when one presses on the left lower quadrant. Furthermore, it would be a courageous surgeon today who would undertake the diagnosis of chronic appendicitis. While the book may thus tend to give a false sense of the accuracy of diagnostic maneuvers and investigation, it represents a long felt need as an epitome of surgical diagnosis. The mere fact that it has passed through so many editions and impressions is ample proof that it has been of service to many.

Die seröse Entzündung: Eine Permeabilitäts-Pathologie. Von Dr. Hans Eppinger, o. ö. Professor, Vorstand der I. med. Universitätsklinik, Wien, Dr. Hans Kaunitz und Dr. Hans Popper. Mit einem Anhang: Über den molekularen Aufbau der Eiweissstoffe. Von Dr. Hermann Mark, o. ö. Professor, Vorstand des I. chem. Universitäts-Laboratoriums in Wien, und Dr. Anton Von Wacek, Privatdozent, Assistent des I. chem. Universitäts-Laboratoriums in Wien. Paper. Price, 26 marks. Pp. 298, with 124 illustrations. Vienna: Julius Springer, 1935.

In this book the importance of the extracapillary circulation in the tissues is subjected to an elaborate and interesting consideration. Everywhere in parenchymatous organs between the capillary membranes and the parenchymatous cells is a space in which fluid circulates. Owing to differences in pressure and electrical potential, substances pass back and forth between the blood and the fluids in the tissues. Under abnormal conditions the capillary walls may become so permeable that they permit the plasma of the blood to pass into spaces in tissues, in consequence of which serious physiologic and morphologic disturbances may result. It is this escape of plasma rich in proteins and the consequences that is called "serous inflammation" in

the book, a designation which the authors themselves regard as not wholly satisfactory because the primary change is not clearly of inflammatory nature in the accepted sense. The process in question has been spoken of elsewhere as an "albuminuria into the tissues," which also is unsatisfactory because there is no actual passage of urine into the tissues. The different aspects of abnormal accumulation of plasma in tissue spaces are considered in detail. Collapse is presented from the point of view that it may result from a diminution of the blood mass in the circulation due to passage of plasma into the tissues. The rôle of certain forms of poisoning in "serous inflammation" and collapse, the methods of analysis and treatment of "serous inflammation" in man, and the relations of "serous inflammation" to the lesions in serum disease, beriberi, exophthalmic goiter, pregnancy, cardiac insufficiency, cirrhosis of the liver and other forms of fibrosis are examples of the topics under discussion. The book is a valuable contribution to the study of the abnormal passage of plasma into the tissues.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Court May Not Disregard Expert Testimony.—The plaintiffs sued the defendant, a physician, for malpractice. The jury returned a verdict for the plaintiffs, but the trial court, on motion of the defendant, granted a new trial. Thereupon the plaintiffs appealed to the district court of appeal, second district, division 1, California.

In the published report of this case there is no statement of facts involved in the alleged malpractice. The main point raised on appeal was whether or not the trial court abused its discretion in granting a new trial. An expert witness for the plaintiffs testified in the course of the trial, in answer to a hypothetical question, that in his judgment the treatment administered by the defendant was not such as would be commonly adopted and used by reputable physicians generally in the same locality, under the same or similar circumstances. This testimony for the plaintiffs was apparently the only evidence bearing on the negligence of the defendant. The defendant called no expert witness from whose testimony the jury could determine whether or not he used the care and skill required by law. In spite of the latitude permitted trial courts in the matter of granting new trials, said the appelate court, a trial court cannot disregard and ignore uncontradicted evidence which has been accepted as a fact by a jury, when such evidence relates to matters within the knowledge of experts alone. In *William Simpson C. Co.* v. *Ind. Acc. Comm.*, 74 Calif. App. 239, 240 P. 58, the industrial commission rejected the uncontradicted testimony of medical experts on what was the proximate cause of a death. On appeal, the court, after citing several decisions, said:

> The rule to be drawn from these decisions, as we understand them, appears to be that whenever the subject under consideration is one within the knowledge of experts only, and is not within the common knowledge of laymen, the expert evidence is conclusive upon the question in issue. It follows that in such cases neither the court nor the jury can disregard such evidence of experts, but, on the other hand, they are bound by such evidence, even if it is contradicted by nonexpert witnesses. . . . Under this rule, the Commission, in the present proceeding, could not reject the evidence of the medical experts when testifying upon any subject peculiarly within their own knowledge.

The defendant contended that the testimony of the expert witness in the present case was not of sufficient substance to sustain a verdict, because the witness gave no reasons for his opinion. While it may be true, said the court, that an expert witness may give reasons for his opinion, he is not required to do so. The facts contained in the hypothetical question propounded to the witness are in themselves reasons for an answer. Furthermore, the defendant had the undoubted right to probe for additional reason on cross-examinations, but he did not exercise that right.

The appellate court was of the opinion that the trial court abused its discretion in granting a new trial and therefore reversed the order to that effect.—*Thomason* v. *Hethcock (Calif.), 46 P. (2d) 832.*

Malpractice: Liability of Original Tort Feasor for Malpractice by Attending Physician.—The plaintiff fractured the bone of his right arm by a fall on ice on the outside stairway of the apartment house in which he lived. After filing a suit against the owners of the apartment house, he, in consideration of the payment of $350, released them from all claims for damages growing out of the accident. Later he sued the physician-defendant in this case, who had treated the fracture, charging malpractice. The physician-defendant denied liability and claimed the benefit of the release that the plaintiff had executed, releasing the owners of the apartment house from liability. The trial court, on motion for judgment, dismissed the case, and the plaintiff appealed to the Supreme Court of Kansas.

As a general rule, said the Supreme Court, the plaintiff, if he exercised due care in the selection of his physician, might have recovered from the owners of the apartment house for the physician's negligence. While there is a division of judicial opinion with respect to this matter, the rule in Kansas has been laid down by the Supreme Court in *Keown* v. *Young*, 129 Kan. 463, 283 P. 511, in which the court held:

> When one sustains personal injuries because of the negligence of another and uses due care in selecting a physician to treat his injuries and in following the advice and instructions of the physician throughout the treatment, and a poor result is obtained because of the negligence of the physician, the law regards the negligence of the one who caused the original injury as the proximate cause of the damages flowing from the negligence of the physician, and holds him liable therefor.
>
> When one sustains personal injuries by the negligence of another and settles his claim for damages against such party, and executes to him a release and discharge "of all suits, actions, causes of action and claims for injuries and damages, which I have or might have arising out of the injuries," such release covers and includes a claim for injuries resulting from the negligence of a physician called by the injured party to treat his injuries when there is no claim of a lack of due care in selecting a physician, or in following his advice with respect to the treatment.

The trial court followed the rule thus laid down and held that the physician-defendant in this case was acquitted of negligence and not liable for the consequences of it. The Supreme Court affirmed the judgment of the trial court.—*Paris* v. *Crittenden (Kan.), 46 P. (2d) 633.*

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Durham, N. C., Apr. 9-11. Dr. George W. Corner, 260 Crittenden Boulevard, Rochester, N. Y., Secretary.

American Association of Pathologists and Bacteriologists, Boston, Apr. 9-10. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American College of Physicians, Detroit, Mar. 2-6. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Executive Secretary.

American College of Radiology, Chicago, Feb. 16. Dr. Benjamin H. Orndoff, 2561 North Clark Street, Chicago, Executive Secretary.

American Orthopsychiatric Association, Cleveland, Feb. 20-22. Dr. George S. Stevenson, 50 West 50th Street, New York, Secretary.

American Physiological Society, Washington, D. C., Mar. 25-28. Dr. A. C. Ivy, 303 East Chicago Avenue, Chicago, Secretary.

American Society for Experimental Pathology, Washington, D. C., Mar. 25-28. Dr. Shields Warren, 195 Pilgrim Road, Boston, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Washington, D. C., Mar. 25-28. Dr. E. M. K. Geiling, 710 North Washington Street, Baltimore, Secretary.

American Society of Biological Chemistry, Washington, D. C., Mar. 25-28. Dr. H. A. Matill, Chemistry Bldg., State University of Iowa, Iowa City, Secretary.

Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, Feb. 17-18. Dr. W. D. Cutter, 535 North Dearborn Street, Chicago, Secretary.

Federation of American Societies for Experimental Biology, Washington, D. C., Mar. 25-28. Dr. E. M. K. Geiling, 710 North Washington Street, Baltimore, Secretary.

Nebraska State Medical Association, Lincoln, Apr. 7-9. Dr. R. B. Adams, 15 N Street, Lincoln, Secretary.

Oklahoma State Medical Association, Enid, Apr. 6-8. Dr. L. S. Willour, 203 Ainsworth Building, McAlester, Secretary.

Pacific Coast Surgical Association, Del Monte, Calif., Feb. 20-22. Dr. Edgar L. Gilcreest, 384 Post Street, San Francisco, Secretary.

Southeastern Surgical Congress, New Orleans, March 9-11. Dr. Benjamin T. Beasley, 478 Peachtree Street N.E., Atlanta, Ga., Secretary.

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Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

5: 241-272 (Jan.) 1936

Dentistry in Its Relationship to Medicine and Public Health. J. N. Baker, Montgomery.—p. 241.

Prevention and Treatment of Adynamic Ileus. J. Watson, Anniston. —p. 245.

Cesarean Section. J. E. Garrison, Birmingham.—p. 249.

Newer Treatment of Syphilis. W. H. Y. Smith, Montgomery.—p. 255.

American Heart Journal, St. Louis

10: 995-1146 (Dec.) 1935

Development of Mitral Stenosis in Young People, with Discussion of Frequent Misinterpretation of Middiastolic Murmur at Cardiac Apex. E. F. Bland, P. D. White and T. D. Jones, Boston.—p. 995.

*Influence of Heat Regulatory Mechanism on Raynaud's Disease. H. E. Pearse Jr., Rochester, N. Y.—p. 1005.

Effect of Ouabain on Electrocardiograms of Specific Muscle Lesions. Jane Sands Robb, M. S. Dooley, J. G. F. Hiss and R. C. Robb, Syracuse, N. Y.—p. 1012.

*Results of Treatment in Cardiovascular Syphilis: Report of Three Years' Additional Observation. P. Padget and J. E. Moore, Baltimore.—p. 1017.

Form of Electrocardiogram in Experimental Myocardial Infarction: IV. Additional Observations on Later Effects Produced by Ligation of Anterior Descending Branch of Left Coronary Artery. F. N. Wilson, F. D. Johnston and I. G. W. Hill, Ann Arbor, Mich.—p. 1025.

Relation of Position of Heart to Initial Ventricular Deflections in Experimental Bundle-Branch Block. P. C. Foster, New Orleans. —p. 1042.

Anatomic and Hydrostatic Basis of Orthopnea and of Right Hydrothorax in Cardiac Failure. W. Dock, San Francisco.—p. 1047.

Follow-Up Study of Sixty-Four Patients with Right Bundle-Branch Conduction Defect. F. C. Wood, W. A. Jeffers and C. C. Wolferth, Philadelphia.—p. 1056.

*Relationship of Heart Block, Auriculoventricular and Intraventricular, to Clinical Manifestations of Coronary Disease, Angina Pectoris and Coronary Thrombosis. J. Salcedo-Salgar, Bogota, Colombia, and P. D. White, Boston.—p. 1067.

Use of Ether in Measuring Circulation Time from Antecubital Veins to Pulmonary Capillaries. W. M. Hitzig, New York.—p. 1080.

Influence of Heat Regulation on Raynaud's Disease.—Pearse studied the influence of body heat regulation in four cases of Raynaud's disease. It was found that, (1) with the hands kept warm, cooling the body will cause an attack of vasospasm, (2) warming the body will relieve an attack, (3) warming the body will not prevent an attack if the hands are exposed to cold, and (4) the warming effect of food was inadequate to influence the vasospasm. It is concluded that body heat regulation may have an influence on the vasospasm of Raynaud's disease. This constitutes further evidence that normal forms of stimulation may give rise to an exaggerated vascular response. It suggests that a local abnormality causes this excessive spastic reaction from several diverse motivating factors.

Results of Treatment in Cardiovascular Syphilis.—Padget and Moore observed the course of 161 patients with frank forms of cardiovascular syphilis with reference to the effect of antisyphilitic treatment. Fifty-two of the patients had saccular aortic aneurysm; 109 had syphilitic aortic insufficiency. Fifty-three patients died in less than a year and are considered in a separate group as unamenable to the beneficial effects of specific therapy because of the gravity of their disease and its rapid progress. The 108 who survived for more than a year received varying amounts of antisyphilitic treatment. Of these, fifty-three are considered in an "inadequate treatment" group and fifty-five in an "adequate treatment" group. The mean potential period of observation was ten years and eight months. The mortality rate for the poorly treated group was 1.37 times that of the well treated group in patients with aneurysm, 2.62 times as great in those with aortic insufficiency, and 2.02 times as great for the group as a whole. The deaths due to cardiovascular syphilis were 1.62 times as great in the poorly treated as in the well treated patients with aneurysm, 2.46 times as great in those with aortic insufficiency, and 2.06 times as great for the whole group. Seventy patients of the series are dead. The duration of life from onset of symptoms for those dead was 1.47 times as great in the well treated as in the poorly treated patients for the whole group, 1.71 times as great in those with aneurysm, and 1.37 times as great in the patients with aortic insufficiency. The latter figure is not of certain statistical significance. A restudy of Grant's cases of syphilitic aortic insufficiency was made. The mortality rate of his poorly treated group was 1.35 times that of those well treated; deaths due to cardiac disease were 1.78 times as frequent in the former as in the latter. No significant difference in the duration of life in his two groups was observed.

Relationship of Heart Block to Coronary Disease.—Salcedo-Salgar and White determined the relative incidence of concurrence of auriculoventricular and intraventricular block, as shown by electrocardiography, and of angina pectoris and of coronary thrombosis in 4,274 patients with cardiovascular symptoms or signs studied during the last fifteen years. Of these, 1,028 showed clinical evidence of coronary disease: 700 of paroxysmal angina pectoris, 169 of coronary thrombosis and 159 of paroxysmal angina pectoris and coronary thrombosis. Only 8.8 per cent of 700 patients with angina pectoris uncomplicated by clinical coronary thrombosis showed heart block, either auriculoventricular block (1.1 per cent) or intraventricular block (7.3 per cent), or both (0.4 per cent), and only 13.1 per cent of 328 cases of coronary thrombosis, with or without angina pectoris, showed heart block, either auriculoventricular block (3.6 per cent) or intraventricular block (8.9 per cent) or both (0.6 per cent). Conversely, of 117 patients with auriculoventricular block, only 9.4 per cent had angina pectoris without clinical coronary thrombosis and only 11.9 per cent more had clinical evidence of coronary thrombosis with or without angina pectoris, making a grand total of 21.3 per cent of cases of auriculoventricular block with clear evidence of coronary disease. Of 181 cases of intraventricular block of all grades, 29.8 per cent showed angina pectoris without clinical coronary thrombosis and only 9.3 per cent showed coronary thrombosis with or without angina pectoris. In both groups more than half of the patients had angina pectoris, coronary thrombosis or both. Coronary disease or other pathogenesis responsible for heart block, either auriculoventricular or intraventricular, does not run parallel to gross lesions of the larger arterial stems of the coronary circulation, the obstruction of which produces clinical evidence of coronary disease in the form of myocardial infarction. Intraventricular block was relatively almost as common in cases of angina pectoris without clinical coronary thrombosis as in cases of clinical coronary thrombosis without angina pectoris. The association of auriculoventricular and intraventricular block with coronary disease is frequent enough to be highly significant. The prognosis of either auriculoventricular or intraventricular heart block in older patients is about equally unfavorable whether or not there are associated clinical evidences of coronary disease. The authors conclude that the coronary supply to the auriculoventricular node and bundle and its branches is not necessarily blocked as a result of the lesion (thrombosis or embolism) which blocks the coronary supply to the areas of the heart (anterior apical and posterior basal portions of the left ventricular myocardium) most commonly affected in clinical coronary thrombosis but that such supply may be seriously involved by atherosclerotic or other processes with poor prognosis even when there is no associated angina pectoris or clinical evidence of sudden blockage of the anterior descending branch of the left coronary artery or of the main trunk of the right coronary artery.

American J. Digestive Diseases and Nutrition, Chicago

2: 593-650 (Dec.) 1935

Experimental Study of Visceral Disease. M. E. Rehfuss and G. M. Nelson, Philadelphia.—p. 593.
Cause of Faulty Digestion in Dogs Without Stomachs. E. S. Emery Jr., Boston.—p. 599.
Experimental Studies in Gastric Physiology in Man: Mechanism of Gastric Evacuation After Partial Gastrectomy as Demonstrated Roentgenologically. H. Shay and J. Gershon-Cohen, Philadelphia.—p. 608.
Rôle of Vitamin B_1 in Tonus of Large Intestine. M. I. Sparks and E. N. Collins, Cleveland.—p. 618.
*Colon Bacillus Vaccine Therapy, as Related to Chronic Functional Diarrhea, Chronic Headache, Chronic "Toxic Vertigo" and "Unstable" Colon (Nonulcerative Colitis). J. G. Mateer, J. I. Baltz, J. Fitzgerald and H. L. Woodburne, Detroit.—p. 621.
Aseptic Electrosurgical Enterostomy: New Method: Preliminary Report. L. R. Whitaker, Boston.—p. 630.
The Hemorrhoidal Lesions: Its Radical Cure by Submucous Injections With or Without Ligature Operation. E. A. Daniels, Montreal.—p. 631.

Colon Bacillus Vaccine Therapy.—During the last four years Mateer and his associates treated with Bacillus coli vaccine more than 1,000 selected cases of chronic functional diarrheas, chronic "toxic vertigo," long standing headaches of the type usually associated with chronic constipation or colon distress, and "unstable" colon. In 125 of these chronic and obstinate cases, vaccine treatment has been instituted in advance of other treatment. In the other subgroups, vaccine therapy has been postponed and subsequently instituted in obstinate cases in which symptoms have persisted after comprehensive therapy. In either instance the results directly traceable to Bacillus coli vaccine therapy can be identified. In thirty cases of chronic functional diarrhea, with an average duration of three and one-half years, Bacillus coli vaccine was administered in advance of any other therapy. There was improvement of the diarrhea in 93⅓ per cent of this group. There was complete disappearance of the diarrhea in 60 per cent and a marked degree of improvement in another 20 per cent of the group. In 40 per cent of the cases demonstrable improvement was noted after the first or second vaccine injection. In a group of cases of chronic headache, with an average duration of 11.7 years, and of the type usually associated with chronic constipation or colon distress, 75 per cent were relieved completely. In cases of toxic vertigo and chronic headache of four years' duration, marked or complete relief occurred in 87.5 per cent. In the occasional cases of obstinate spastic constipation, when Bacillus coli vaccine is added to the comprehensive therapy previously instituted there is convincing evidence that the vaccine tends to relax the partially obstructing spasm of the distal colon. In cases of "unstable" colon (nonulcerative colitis) with obstinate distress or pain that persisted in spite of the usual comprehensive therapy, Bacillus coli vaccine was instituted subsequently. In 70 per cent of this group there was improvement or disappearance of the colon distress. Bacillus coli vaccine constitutes a valuable therapeutic aid, if judiciously used in properly selected cases.

American J. Obstetrics and Gynecology, St. Louis

30: 763-928 (Dec.) 1935

Further Studies on Mechanism of Labor. W. E. Caldwell, H. C. Moloy and D. A. D'Esopo, New York.—p. 763.
*Treatment of Carcinoma of Cervix by Wertheim's Operation. V. Bonney, London, England.—p. 815.
Tuberculosis of Cervix Uteri. V. S. Counseller and D. C. Collins, Rochester, Minn.—p. 830.
Metabolism of Levulose: VII. Influence of Reproductive Cycle on Tolerance. A. W. Rowe, Mary A. McManus and Gertrude A. Riley, Boston.—p. 841.
Ruptured Interstitial Pregnancy. M. Weinstein, Long Island City, N. Y.—p. 849.
Embryonal Cysts of Cervix and Their Etiology: Report of Two Cases. J. Kotz, Washington, D. C.—p. 854.
Intra-Uterine Gas Gangrene with Recovery. W. D. Carrell, Tucson, Ariz.—p. 858.
Determination of Rupture of Membranes. A. G. King, Cincinnati.—p. 860.
*Prevention of Excoriation of Perineum from Silver Wire Sutures. H. Grad, New York.—p. 863.
Control of Restlessness in Painless Labor. R. A. Bartholomew and E. D. Colvin, Atlanta, Ga.—p. 866.

Treatment of Carcinoma of Cervix.—Bonney has performed Wertheim's operation 483 times for carcinoma of the cervix. The operation has been as drastic as possible, including the removal of most or all of the vagina and the extirpation of the regional glands. He has classified his cases according to whether the regional glands removed at the operation were or were not carcinomatous. If the patients lost sight of and dying of other disease within five years of the operation are reckoned as having died of recurrence, the five year cure rate is 39 per cent, or, if they are dismissed from the calculation, between 41 and 42 per cent. The regional glands were carcinomatous in 42 per cent of the cases. The patients whose regional glands were growth free ran on the average an operative death risk of 9.8 per cent, in return for which they gained, depending on which of the two reckonings is employed, a 51 or 55 per cent chance of five year survival; whereas, on the average, patients whose regional glands were carcinomatous ran a death risk of 20 per cent to gain a 22 or 23 per cent chance of five year survival. If patients who were lost sight of and dying of other disease are reckoned as having died of carcinoma, the ten year cure rate is 20 per cent, but, if they are dismissed from the calculation, it is 33 per cent. Ten year cures are to be regarded as absolute cures. It is not, of course, impossible for recurrence to take place after that lapse of time, but the author has not encountered it.

Prevention of Excoriation of Perineum from Sutures.—Grad has succeeded in eliminating pain due to excoriation and ulceration of the skin of the perineum and sometimes the anus from being in contact with the ends of sutures. The method consists in preparing a piece of rubber tissue like that from which surgeons' gloves are made. The piece should be 5 inches long and 3 inches wide. In its center, six or seven tiny holes are burned with the point of a pin brought to a red heat. A piece of rubber tubing one-half inch in diameter and 2 inches long, capable of maintaining its round shape, is prepared. On one side of the curve of the rubber tube six or seven tiny holes are burned in a straight line. On the side opposite the holes the tube is split through its entire length in a straight line, so that the tube can be opened up, and when pressure is released the tube closes up again. After the ends of the silver wire have been twisted, the rubber sheet is spread on the perineum and the ends of the wire are pulled through the small openings. The rubber tube is threaded on the silver wires. Over each wire is threaded a perforated lead shot, pushed down in the lumen of the tube and made to grasp the wire by flattening the shot. The superfluous portion of the wire is then cut off flush with the perforated shot. The flattened shot holds the suture firmly and lies entirely within the lumen of the rubber tube, and the ends of the suture and shot cannot rub against the patient's skin. The rubber sheet, which has first been placed on the perineum, is now tied over the rubber tube with a piece of silk.

American Journal of Ophthalmology, St. Louis

18: 1087-1178 (Dec.) 1935

Relation of Vitamin A to Anophthalmos in Pigs. F. Hale, College Station, Texas.—p. 1087.
Streptococcic Pseudomembranous Conjunctivitis: Report of Case. H. C. Kluever, Iowa City.—p. 1094.
Lysozyme Content of Tears. W. M. James, St. Louis.—p. 1109.
Bacterial Flora of Normal Conjunctiva. Devorah Khorazo and R. Thompson, New York.—p. 1114.
Dacryostenosis in Children. R. O. Riser, Park Ridge, Ill.—p. 1116.
Mechanism of Experimental Exophthalmos. C. F. Code and H. E. Essex, Rochester, Minn.—p. 1123.
*Syphilis and Primary Glaucoma. W. Beckh, Baltimore.—p. 1129.
Voluntary Control of Accommodation. W. Zentmayer, Philadelphia.—p. 1134.
Recession Operation: Criticism. R. O'Connor, San Francisco.—p. 1137.
Dissociative Influence of Normal Rabbit Conjunctiva on Beta Hemolytic Streptococci. G. H. Gowen, Chicago.—p. 1140.

Syphilis and Primary Glaucoma.—Beckh investigated the incidence of syphilis in a group of 288 white and seventy-seven Negro patients with primary glaucoma, representing all the public ward patients with primary glaucoma admitted to the Wilmer Ophthalmological Institute of the Johns Hopkins Hospital between October 1925 and February 1934. The incidence of syphilis in primary glaucoma has been compared with the incidence of the same disease in cataract. In the white patients the incidence of syphilis was found to be somewhat lower in those with primary glaucoma than in those with cataract and considerably lower than in a series of general medical admissions. In the Negro group the incidence of syphilis was higher in those with primary glaucoma than in those with cataract

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but still lower than in the general medical admissions. A comparison of the average age of the patients at the onset of glaucoma symptoms in the syphilitic and the nonsyphilitic groups showed that the white syphilitic patients were three years older than the nonsyphilitic when their glaucomatous symptoms appeared, while in the Negro patients there was no difference between the two groups. Of the twenty-two patients with primary glaucoma and syphilis, the syphilitic disease process was latent in eighteen. One patient had cardiovascular syphilis verified by necropsy and two had asymptomatic neurosyphilis, while cardiovascular syphilis was tentatively diagnosed in a fourth. A comparison of seventeen syphilitic cases treated by specific therapy and miotics and observed for an average of fourteen months with a series of fifty-two nonsyphilitic cases treated by miotics alone and adequately followed showed a somewhat poorer therapeutic response in the syphilitic group. This study has failed to present any evidence for the view that primary glaucoma is in any way related to syphilis.

American Journal of Physiology, Baltimore

114: 1-254 (Dec. 1) 1935

Specific Nature of Inhibition of Coagulating Effect Exerted by Tissue Extract on Plasma Resulting from Incubation of Tissue Extract with Blood Serum. C. Moore, V. Suntzeff and L. Loeb, St. Louis.—p. 1.

Inhibiting Action of Cattle and Sheep Serum on Kidney Extracts of Cattle and Sheep. E. W. Thurston, J. E. Smadel and L. Loeb, St. Louis.—p. 19.

Experimental Production of Anemia in Dogs by Means of Black Tongue Producing Diet. T. D. Spies and A. S. Dowling, Cleveland.—p. 25.

Reaction of Chronic Spinal Animals to Hemorrhage. C. M. Brooks, Baltimore.—p. 36.

Forces Concerned in Absorption of Cerebrospinal Fluid. L. H. Weed, Baltimore.—p. 40.

Secretory Metabolism of Salivary Glands. D. Northup, Chicago.—p. 46.

Effect of Epinephrine on Arterial and Venous Plasma Sugar and Blood Flow in Dogs and Cats. C. F. Cori, R. E. Fisher and G. T. Cori, St. Louis.—p. 53.

Afferent Function in Group of Nerve Fibers of Slowest Conduction Velocity. D. Clark, J. Hughes and H. S. Gasser, New York.—p. 69.

Discharge of Impulses from Pacinian Corpuscles in Mesentery and Its Relation to Vascular Changes. G. D. Gammon and D. W. Bronk, Philadelphia.—p. 77.

Changes in Electrical Resistance of Nerve During Block by Cold and by Heat. I. F. Hummon Jr. and T. E. Boyd, Chicago.—p. 85.

Electrical Activity of Human Motor Units During Voluntary Contraction. D. B. Lindsley, Boston.—p. 90.

Chemical Transmission of Vagal Effects to Small Intestine. H. Bunting, W. J. Meek and C. A. Maaske, Madison, Wis.—p. 100.

Hunger Diabetes and Utilization of Glucose in Fasting Dog. S. Soskin and I. A. Mirsky, Chicago.—p. 106.

Influence of Hypophysectomy on Gluconeogenesis in Normal and Depancreatized Dog. S. Soskin, I. A. Mirsky, L. M. Zimmerman and N. Crohn, Chicago.—p. 110.

Nature of T Wave Potentials in Tortoise Heart. M. R. Krasno, J. A. E. Eyster and C. A. Maaske, Madison, Wis.—p. 119.

Relation Between Viscosity of Blood and Relative Volume of Erythrocytes (Hematocrit Value). Kaare K. Nygaard, Marian Wilder and J. Berkson, Rochester, Minn.—p. 128.

Synthesis of Neutral Fat by Intestine of Diabetic Dogs. S. Freeman and A. C. Ivy, Chicago.—p. 132.

Rate of Elimination of Dissolved Nitrogen in Man in Relation to Fat and Water Content of Body. A. R. Behnke, R. M. Thomson and L. A. Shaw, Boston.—p. 137.

Further Study of Electrical Responses of Smooth Muscle. E. F. Lambert and A. Rosenbluth, with collaboration of H. Davis, A. Forbes and C. L. Prosser, Boston.—p. 147.

Methylene Blue and Hemoglobin Derivatives in Asphyxial Poisoning. Matilda Moldenhauer Brooks, Berkeley, Calif.—p. 160.

Afferent Functions of Nonmyelinated or C Fibers. G. H. Bishop and P. Heinbecker, St. Louis.—p. 179.

*Antianemic Treatment in Experimental Polycythemia. Louis Hanson Marshall, Chicago.—p. 194.

Plasma Protein Regeneration After Bleeding in Rat. W. C. Cutting and R. D. Cutter, San Francisco.—p. 204.

Changes in Circulatory Effect of Potassium Salts Due to Epinephrine (Adrenalin). H. A. McGuigan and J. A. Higgins, Chicago.—p. 207.

Studies on Extrinsic and Intrinsic Nerve Mechanisms of the Heart. P. Heinbecker and G. H. Bishop, St. Louis.—p. 212.

Electrical Phenomena of Crustacean Nerve-Muscle System. H. G. du Bay, Boston.—p. 224.

Effects of Ingestion of Nutritive and Nonnutritive Liquids on Diurnal Variations in Weight Loss. C. I. Hovland, New Haven, Conn.—p. 235.

Kinetics of Elimination of Substances Injected Intravenously (Experiments with Creatinine). R. Dominguez, H. Goldblatt and Elizabeth Pomerene, Cleveland.—p. 240.

Antianemic Treatment in Experimental Polycythemia.—To test the hypothesis whether the function of the liver is to reestablish the normal number of erythrocytes in the blood, Marshall produced a sustained polycythemia in rats, which were then treated with liver. The polycythemia was produced by the administration of a milk diet supplemented by salts of cobalt, iron, copper and manganese. Red cell counts of blood obtained by heart puncture revealed a polycythemia of from 10.5 to 13 million cells per cubic millimeter, in contrast to from 7.5 to 8 million for the normal controls. The high erythrocyte count has been promptly lowered to an average of 87 per cent of its initial level within six days by daily injections of 0.25 cc. of a concentrated liver extract. Controls receiving injections of saline or kidney extract maintained a count averaging 11.5 million. The fall in erythrocytes was only temporary, a return to above the initial level occurring although the liver extract was continued. Administration of desiccated hog stomach brought about a more gradual and less pronounced decrease in erythrocytes, which was maintained throughout the experiment. Feeding of fresh whole liver caused a temporary increase in the already high erythrocyte count, but no lowering occurred. Fresh lean meat produced no change. Certain similarities between cobalt polycythemia in rats and primary polycythemia as it occurs in man are discussed, and some of the theories of direct or indirect hormone control of the erythroplastic tissues are presented. The evidence presented is interpreted by assuming a hormone which originates in the liver and exercises an inhibiting action on hematopoiesis.

American Journal of Psychiatry, New York

92: 509-762 (Nov.) 1935

Megalomyelo-Encephaly: Report of Case with Diffuse Medulloblastosis. A. Ferraro and S. E. Barrera, New York.—p. 509.

The Epilepsies. F. Kennedy, New York.—p. 527.

Follow-Up Study of Hoch's Benign Stupor Cases. H. L. Rachlin, Ward's Island, N. Y.—p. 531.

Practical Considerations Relating to Family Care of Mental Patients. H. M. Pollock, Albany, N. Y.—p. 559.

Dynamic Concepts and Epileptic Attack. S. E. Jelliffe, New York.—p. 565.

Objective Interpretation by Means of Rorschach Test of Psychobiologic Structure Underlying Schizophrenia, Essential Hypertension, Graves' Syndrome, etc.: Preliminary Report. A. W. Hackfield, Seattle.—p. 575.

First Year of the New Standard Nomenclature of Diseases in Massachusetts Mental Hospitals. N. A. Dayton, Boston.—p. 589.

Summary of Report of American Neurological Association Committee for Investigation of Sterilization. A. Myerson, Boston.—p. 615.

*Mental Disease Among Foreign-Born Whites, with Especial Reference to Natives of Russia and Poland. B. Malzberg, New York.—p. 627.

Androgynoid Characteristics in Case of Schizophrenia. Annette C. Washburne, Madison, Wis.—p. 641.

*Effect of Alcohol in Catatonic Syndromes: Preliminary Report. N. V. Kantorovich and S. K. Constantinovich, Leningrad, U. S. S. R.—p. 651.

False Concepts of Diseases or Conditions as Psychogenic Foci. L. H. Ziegler, Albany, N. Y., and J. Heyman, Newark, N. J.—p. 655.

Dr. E. E. Southard's Scientific Contributions to Psychiatry: Appreciation After Twenty Years. L. B. Alford, St. Louis.—p. 675.

Psychologic Medicine as Practiced by the Quack. C. A. Rymer and Marion Reinhardt Rymer, Denver.—p. 695.

Physical Therapy in a Mental Hospital. R. H. Hutchings Jr., Wingdale, N. Y.—p. 709.

Instinctive, Emotional and Mental Changes Following Prefrontal Lobe Extirpation. S. Ackerly, Louisville, Ky.—p. 717.

Mental Disease Among the Foreign-Born.—Malzberg investigated the rates of mental disease among Russians and Poles, in order to contrast the latter with other foreign groups and with native white subjects of native parentage. Exclusive of Italians, these two groups constitute the largest foreign-born populations in New York State. There were 481,306 individuals in New York State on April 1, 1930, who were born in Russia, and they constituted 14.8 per cent of the total foreign-born population. The Polish group totaled 350,383 on the same date, representing 10.7 per cent of all the foreign born in New York State. The study indicates that natives of Russia and Poland had lower rates of mental disease than the other leading foreign-born groups, and that they even compared not too unfavorably with natives of native parentage. Their rates of mental disease were decidedly lower than those for natives of northwestern Europe. Invidious comparisons of the immigrant populations from a biologic point of view are unjustified. If some eastern European immigrants have lower rates of mental disease than immigrants from northwestern Europe, it is true also that Austrians and Hungarians have rates above the average. If some of the northwestern European populations have moderate rates of mental disease, others such as the Irish and the Scandinavians have the highest. Within each of these broad aggregates of population there evidently are some groups

with high rates and others with low rates. It appears pertinent therefore to concentrate on the causes of variation within each group rather than to dispute endlessly over hypothetical racial causes of mental disease.

Effect of Alcohol in Catatonic Syndromes.—Kantorovich and Constantinovich observed that alcohol often interrupts the course of catatonic stupor, producing a temporary, and sometimes lasting, cessation of mutism, torpor and negativism. Under such circumstances it often becomes possible to gain access to the content of the patient's psychotic trend as well as to facts of case history. Should further experience with alcohol in catatonic and hebephrenic cases yield similar results, the conclusion would be justified that a safe and simple procedure has become available as both a therapeutic and a diagnostic aid in the psychiatric clinic.

Annals of Internal Medicine, Lancaster, Pa.

9: 649-822 (Dec.) 1935

Hemodynamics of Circulation in Hypertension. J. M. Kinsman and J. W. Moore, Louisville, Ky.—p. 649.
*Vascular Disease in the Obese Diabetic, and in Nondiabetics: Discussion of Arteriosclerosis as Cause of Diabetes. E. C. Beck, J. G. Fowler, E. C. Koenig and B. D. Bowen, Buffalo.—p. 662.
Studies Relating Vitamin C Deficiency to Rheumatic Fever and Rheumatoid Arthritis: Experimental, Clinical and General Considerations: II. Rheumatoid (Atrophic) Arthritis. J. F. Rinehart, San Francisco.—p. 671.
Effects of Chronic Disease of Liver on Composition and Physicochemical Properties of Blood: Changes in Serum Proteins; Reduction in Oxygen Saturation of Arterial Blood. A. M. Snell, Rochester, Minn.—p. 690.
Hypothyroidism: Common Symptom. R. I. Lee, Boston.—p. 712.
Clinical Relationships of Blood Cholesterol with Summary of Our Present Knowledge of Cholesterol Metabolism. L. M. Hurxthal and Hazel M. Hunt, Boston.—p. 717.
Blood Cholesterol in Disturbances of Basal Metabolic Rate. L. C. McGee, Elkins, W. Va.—p. 728.
*Use of Helium in Treatment of Asthma and Obstructive Lesions in Larynx and Trachea. A. L. Barach, New York.—p. 739.
*Symptomatic Psychoses in Pernicious Anemia. P. W. Preu and A. J. Geiger, New Haven, Conn.—p. 766.
Oleothorax: Clinical and Experimental. J. N. Hayes, Saranac Lake, N. Y.—p. 779.

Diabetes.—Beck and his co-workers point out that calcification of the arteries of the lower extremities (demonstrated roentgenologically), which is so common, particularly in uncontrolled diabetes among older persons, is essentially absent in patients with early diabetes and obese people, some of whom are potentially diabetic. No evidence was found to show that hypertension or retinal arteriosclerosis could be correlated with the obese patients' ability to use dextrose. The incidence of hypertension appears to be higher in older diabetic patients. This is essentially related to obesity and not to diabetes. Obesity, hypertension and diabetes appear to be unquestionably influenced by a hereditary factor. All three may be found together or in various combinations. It appears that obesity increases the likelihood of both diabetes and hypertension, but it is less certain that the presence of hypertension contributes to the probability of diabetes, since the incidence of hypertension is about the same in the nondiabetic obese person as in the obese diabetic person. With the mechanism of the production of diabetes so incompletely understood, its pathologic anatomy so variable and the possibility of extrapancreatic influences so definite, it is not surprising that many should regard the inception of diabetes as a functional disturbance. It may be more logical to think of it as a different reaction at various ages. It is conceivable also that the presence of vascular degenerative changes in the pancreas may be a factor in the production of diabetes, but it seems unlikely that it is the sole cause. If it were so, diabetes in the aged and in patients with high grade hypertension should be more common, unless an elective vascular disease of the pancreas exists. Also, atherosclerosis in older people is more common in men than in women. Diabetes, however, in the same age group is more common in women.

Helium in Treatment of Asthma.—Barach states that a mixture of 80 per cent helium and 20 per cent oxygen has one-third the weight of a comparable volume of air. It was assumed that a relatively light respirable gas could be breathed with less effort in clinical conditions in which difficulty in ventilating the lungs was present. In four patients with severe asthma, inhalation of helium-oxygen mixtures appeared to be of considerable benefit. When continuous asthma was present, subjective and objective relief were obtained. In three cases a grave asthmatic condition and refractoriness to epinephrine were removed by inhalation of helium-oxygen mixtures. The acute attack of asthma was not aborted, and the relief obtained by inhalation of various mixtures of helium and oxygen was not sufficient to replace epinephrine when this drug was effective. The special value of helium-oxygen mixtures is in the treatment of asthma persisting after epinephrine and in status asthmaticus. Graphic records of the quantitative and qualitative changes in pulmonary ventilation revealed the following consequences of inhalation of helium-oxygen mixtures in a patient with continuous asthma: (1) decrease in pulmonary ventilation, (2) decrease in pulmonary pressure, (3) relative and absolute diminution in the length of expiration and (4) increased rest period between respiratory cycles. The decreased pulmonary pressure and the swifter flow of gas during the early phase of expiration would appear to lessen the likelihood of alveolar distention and emphysema in patients who have much continuous asthma. Severe obstructive dyspnea in two infants, one with laryngeal and the other with tracheal obstruction, was relieved by inhalation of helium-oxygen mixtures. In one of these cases, the infant was comfortable in a helium-oxygen tent for eight days, but the congenital nature of the obstruction was such as to require tracheotomy ultimately. In conditions of laryngeal or tracheal obstruction in which there is a possibility of the obstruction clearing up, the inhalation of helium-oxygen atmospheres may be useful by providing relief from a severe form of air hunger and its consequent fatigue of the respiratory musculature. The relief of dyspnea in patients suffering from various types of respiratory obstruction during the inhalation of helium-oxygen mixtures made evident the importance of an accustomed volume flow of gas to and from the lungs. This special equilibrium, i. e., the maintenance of a certain required pulmonary air flow, is regulated by proprioceptive reflexes from the lungs and the respiratory musculature. Disturbance in this equilibrium is the primary cause of the sensation of air hunger in this type of dyspnea; anoxemia may occur in severe cases as a secondary complicating factor.

Symptomatic Psychoses in Pernicious Anemia.—Three cases of classic addisonian pernicious anemia observed by Preu and Geiger are reported in which the psychoses seem clearly to bear a symptomatic relationship to the deficiency disease. The patients showed the fundamental symptoms of an organic psychosis. The first patient seemed confused on admission, and disorientation was observed on several occasions before improvement in the mental picture began. She was very easily fatigued, her attention was poor, and her intelligence was dull; but the authors did not feel that these features accounted for the disorientation and confusion. Memory seemed impaired at first, but it gradually improved, as did the other organic mental symptoms, under specific treatment. Although the second patient was clearly oriented on admission, disorientation for time and place was observed two days later as well as on several other occasions. Brief episodes of nocturnal confusion were observed, which they believed likewise indicated clouding of consciousness. Memory seemed poor but showed no striking change and was difficult to evaluate because of the limited intelligence of the patient. The defects in orientation and the episodic confusion improved under treatment. The third patient was found to be definitely disoriented for time on a number of occasions, and recent memory defects were demonstrated repeatedly at times when her attention and cooperation were satisfactory. No improvement in the symptoms occurred during two weeks of specific treatment, after which death occurred from a pulmonary complication. The opinion of the psychiatric staff was in favor of a diagnosis of symptomatic psychosis in all three cases on the basis of the organic symptoms discussed. The character and severity of the mental disturbances bore no consistent relationship either to the degree of anemia or to the extent of the neurologic manifestations. While this may appear implausible, it seems to the authors fully as admissible as the well established observation that neurologic involvement varies independently of the state of the blood, subacute combined sclerosis sometimes appearing long before the actual develop-

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nent of anemia. Goldhamer and others have observed that cerebral manifestations may occur either alone or in association with cord disturbance, that they may be present with or without evidence of anemia, and that they may present themselves as the earliest and only manifestations of pernicious anemia.

Archives of Pathology, Chicago

20: 823-966 (Dec.) 1935

Parathyroid Glands: II. Histologic Study of Parathyroid Adenoma. S. Warren and J. R. E. Morgan, Boston.—p. 823.
Cyanotic Atrophy of Liver: Wax Model Reconstruction. C. S. Hagerty and J. W. Devereux, Chicago.—p. 837.
*Vitamin A Deficiency in Spite of Adequate Diet in Congenital Atresia of Bile Ducts and Jaundice. M. D. Altschule, Boston.—p. 845.
Susceptibility to Dental Caries in the Rat: VI. Influence of Orange Juice and Acid-Base Balance of the Diet. T. Rosebury and M. Karshan, New York.—p. 857.
Renal Lesions Following Injection of Sodium Dehydrocholate in Animals With and Without Biliary Stasis. H. L. Stewart and A. Cantarow, Philadelphia.—p. 866.

Vitamin A Deficiency and Congenital Atresia of Bile Ducts.—Altschule discusses the postmortem study of eleven infants with congenital atresia of the bile ducts. All had received diets adequate in vitamin A and none presented clinical evidence of xerosis or keratomalacia during life. Microscopic changes diagnostic of vitamin A deficiency, as defined by Wolbach and Howe, were observed in six, and the clinical histories and the necropsies in these six cases are presented. In each of these cases the family history was irrelevant. The deficiency apparently occurs as a result of failure of absorption of vitamin A from the gastro-intestinal tract due to the absence of bile. There is evidence indicating that the parenteral administration of vitamin A is effective in patients in whom vitamin A deficiency develops as a result of severe obstructive jaundice. The oral administration of the vitamin together with bile salts also is possibly of value.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

16: 705-768 (Dec.) 1935

Treatment of Erysipelas with Ultraviolet Radiation. M. E. Knapp, Minneapolis.—p. 711.
Physical Therapy in Surgical Practice. H. H. Ritter, New York.—p. 715.
Some Concepts of Prostatic Resection. G. J. Thomas, Minneapolis.—p. 718.
Limitations of Prostatic Resection. H. C. Rolnick, Chicago.—p. 722.
Short Wave Therapy. W. J. Turrell, Oxford, England.—p. 724.
Ultraviolet as a Bactericide. A. Bachem, Chicago.—p. 733.
*Desiccation of Hemorrhoids. G. D. Graham, Winnipeg, Manit.—p. 741.
Vacuum Type Wave Generator of Faradic and Galvanic Current. R. Kovács, New York.—p. 743.

Desiccation of Hemorrhoids.—In his desiccation method for hemorrhoids Graham uses about 2 ounces (60 cc.) of a 1 per cent solution of procaine hydrochloride to which about 4 minims (0.3 cc.) of epinephrine has been added. A 20 cc. syringe with a 1½ inch, 22 gage needle is used for its injection. The skin is pierced by the hypodermic needle at the anterior anal margin and is carried up to and into the sphincter ani muscles, injection of the fluid being made as the needle enters. The needle is then almost withdrawn and its direction changed so that it is pushed laterally and posteriorly on each side of the anal margin. The needle is then completely withdrawn and a similar injection made at the posterior anal margin. In a very few minutes the sphincter muscles relax around the surgeon's finger and the external and semiexternal piles can be turned out easily and a good view of them obtained. They are now ready to be desiccated. Any diathermy machine with a good Oudin coil attached is suitable. Ordinary sewing needles from 2 to 4 inches long may be used. The current is turned on and the spark gap is adjusted so that the current will be of a strength to throw a spark about one-eighth inch in length. The needle is inserted into the base of the pile about one-eighth inch from its margin and is held steady until an area of desiccation appears in the form of a dirty gray color around the needle. In external and semiexternal piles it suffices to desiccate around their base, leaving them to slough off gradually. As much of the internal piles as can be reached should be desiccated through a speculum. A hemorrhoidal suppository is inserted and the operation is completed. Postoperatively a tablet containing an antipyretic and a half grain (0.03 Gm.) of codeine is prescribed for pain. Liquid petrolatum emulsified with agar-agar is ordered as a combination best preventing seepage from the intestine and promoting a gentle and soft intestinal motion least irritating to the inflamed parts. After the initial contraction of the piles there follows a reaction that causes swelling of the parts, and with large external piles the patient may be unable to replace them for about two days. If these become painful, hot foments or sitting in a hot bath generally give relief. By that time contraction starts to take place, the swelling goes down rapidly and the piles can be replaced with ease. The patient is not hospitalized and remains at home for only three days, preferably in bed.

Endocrinology, Los Angeles

19: 633-746 (Nov.-Dec.) 1935

The Adrenal Problem. F. A. Hartman, Columbus, Ohio.—p. 633.
Atypical Familial Endocrinopathy in Males with Syndrome of Other Defects. W. A. Reilly, San Francisco.—p. 639.
*Clinical Use of Emmenin (Human Placental Extract-Collip). Minnie B. Goldberg and H. Lisser, San Francisco.—p. 649.
Effect of Ovarian Hormones and Ovarian Grafts on Mammary Glands of Male Mice. W. U. Gardner, New Haven, Conn.—p. 656.
Certain Factors Affecting Constancy of Impedance Angle. A. Barnett, with assistance of S. Bagno, Brooklyn.—p. 668.
Experimental Studies of Anterior Pituitary: III. Observations on Persistence of Hypophyseal Transplants in Anterior Eye Chamber. H. O. Haterius, M. Schweizer and H. A. Charipper, New York.—p. 673.
*Laurence-Moon-Biedl Syndrome: Report of Three Cases. M. Molitch, Philadelphia and Jamesburg, N. J.; R. G. Gladen, New Lisbon, N. J., and A. W. Pigott, Skillman, N. J.—p. 682.
Further Observations on Treatment of Hyperinsulinism with Insulin. H. J. John, Cleveland.—p. 689.
Syndrome Accompanying Deficiency or Absence of Ovarian Follicular Hormone: Study of One Hundred and Ninety-Seven Cases. A. A. Werner, St. Louis.—p. 695.
Size and Structure of Thyroid Gland of Cat After Administration of Irradiated Ergosterol. A. M. Lands and O. O. Stoland, Lawrence, Kan.—p. 701.
Menopausal Hypertension. R. L. Schaefer, Detroit.—p. 705.
Studies on Conditions of Activity in Endocrine Organs: XXX. Nervous Control of Anterior Hypophysis as Indicated by Maturation of Ova and Ovulation After Stimulation of Cervical Sympathetics. H. B. Friedgood and G. Pincus, Boston.—p. 710.

Clinical Use of Human Placental Extract.—Goldberg and Lisser believe that they gave the alcohol soluble, ether insoluble complex present in acetone extracts of human placenta (emmenin-Collip) an adequate trial by employing it in 100 instances of various menstrual disorders, occurring in sixty-six women. It has proved helpful in restoring menstruation if periods have been absent less than a year. It is probably useless in amenorrhea of longer duration. In eight of nine cases of oligomenorrhea the menstrual interval was more nearly regularized. The same result was accomplished in seven patients whose menstrual interval was utterly irregular, sometimes too soon, other times too late. Polymenorrhea was unaffected in the only three cases in which the preparation was used. Hypomenorrhea was definitely improved in nine of twelve cases. Menopausal symptoms and cyclic menstrual headaches were relieved in a fair majority of cases. In two of four cases of sterility, pregnancy occurred under its therapy. More than 60 per cent of forty subjects with severe dysmenorrhea were remarkably relieved. Psychic factors were rigidly excluded. This constitutes its most significant clinical usefulness.

Laurence-Moon-Biedl Syndrome.—Molitch and his associates describe three brothers affected to a different degree with a hereditary cerebral defect. All three had polydactylism, mental deficiency, pituitary dysfunction and some visual defect. The oldest brother (aged 16) has also retinitis pigmentosa, while the next oldest (aged 11) has a severe degree of myopia with a tessellated appearance of the retina. The youngest brother (aged 8 at death) had a mild visual defect with strabismus. It is concluded that all cases occurring in the same family and showing all or almost all the cardinal symptoms of the Laurence-Moon-Biedl syndrome should be so categorized. Isolated cases, without other siblings being affected and not showing all the cardinal symptoms, should not be included in the syndrome. Reilly and Lisser in their survey and summary of the literature concluded that the syndrome consists of six cardinal symptoms: obesity, mental deficiency, genital dystrophy, polydactylism, retinitis pigmentosa and familial occurrence.

Florida Medical Association Journal, Jacksonville

22: 239-284 (Dec.) 1935

Boils and Carbuncles. J. R. Chappell, Orlando.—p. 251.
Present Medical Trends. H. L. Bryans, Pensacola.—p. 257
Management of Acute Gonorrheal Infections: Personal Impressions Acquired from Fifteen Years' Experience. R. J. Holmes and M. M. Coplan, Miami.—p. 259.
Hoarseness. M. A. Lischkoff, Pensacola.—p. 263.
Repairs of Lacerations or Wounds. G. M. Green, Daytona Beach. —p. 265.

Johns Hopkins Hospital Bulletin, Baltimore

57: 317-408 (Dec.) 1935

Spinal Cord of Finback Whale (Balaenoptera Physalus): Note. W. L. Straus Jr., Baltimore.—p. 317.
Fingeragnosia (Gerstmann). W. Muncie, Baltimore.—p. 330.
Researches on Tetanus: IV. Some Historical Notes on Tetanus and Commentaries Thereon. J. J. Abel and Bettylee Hampil, Baltimore. —p. 343.
*Compensatory Changes in Remaining Lung Following Total Pneumonectomy: Experimental Study. W. F. Rienhoff Jr., Baltimore; F. L. Reichert, San Francisco, and G. J. Heuer, New York.—p. 373.
Experimental Gastrectomy: Effects on Blood Morphology, Especially When Complicated by Infection or Liver Damage. H. B. Shumacker Jr. and M. M. Wintrobe, Baltimore.—p. 384.

Compensatory Changes Following Pneumonectomy.—Rienhoff and his associates found that the compensatory changes in the remaining lung following total pneumonectomy in dogs consist of simple dilatation of the respiratory lobules or the definitive respiratory units made up of the respiratory bronchiole, the alveolar ducts, the atria, the alveolar sacs and the alveoles. This dilatation comes in response to increased physiologic demands and is of a compensatory nature. It is not an emphysema and there is no interruption or diminution of the elastic tissue or fusion of the alveoles to suggest pathologic change in the parenchyma of the lung. There is no increase in the number of the bronchial trees or in their pattern, and apparently the blood vascular system, except for a possible dilatation, is unaffected. No evidence of true hyperplasia or hypertrophy was found. The lack of uniformity of dilatation of the alveoles in any one section was found to be due to the fact that the serial sections were cut through the alveoles at different levels of the block of tissue. The maximal diameter of different alveoles is, of course, situated in different planes.

Journal of Nutrition, Philadelphia

10: 579-722 (Dec. 10) 1935

*Metabolism of Women During the Reproductive Cycle: VI. Case Study of Continuous Nitrogen Utilization of Multipara During Pregnancy, Parturition, Puerperium and Lactation. Helen A. Hunscher, Frances Cope Hummell, Betty Nims Erickson and Icie G. Macy, Detroit. —p. 579.
Selenium in Proteins from Toxic Foodstuffs: IV. Effect of Feeding Toxic Proteins, Toxic Protein Hydrolysates, and Toxic Protein Hydrolysates from Which the Selenium Has Been Removed. K. W. Franke and E. P. Painter, Brookings, S. D.—p. 599.
Relation Between the Vitamin A and D Intake by the Hen and the Output in Eggs. W. C. Russell and M. W. Taylor, New Brunswick, N. J.—p. 613.
*Study of Nutritive Value of Mushrooms. F. W. Quackenbush, W. H. Peterson and H. Steenbock, Madison, Wis.—p. 625.
Effect of Ingestion of Saline Waters on the Hydrogen Ion Concentration of Intestinal Tract, Nitrogen Balance and Coefficient of Digestibility. V. G. Heller, J. R. Owen and Lucile Portwood, Stillwater, Okla.—p. 645.
*Differential Antirachitic Activity of Vitamin D Milks. R. W. Haman and H. Steenbock, Madison, Wis.—p. 653.
Studies on Growth: III. B and G Avitaminosis in Cecectomized Rats. W. H. Griffith, St. Louis.—p. 667.
Id.: IV. Vitamin B and G Content of Body Tissues of Normal and Experimental Rats. W. H. Griffith, St. Louis.—p. 675.
Variability of Vitamin D Response with Temperature of Environment. D. Tourtellotte and W. E. Bacon, Battle Creek, Mich.—p. 683.
Editorial Review: Absorption and Utilization of Carbohydrates. H. B. Pierce, Rochester, N. Y.—p. 689.

Metabolism During Reproductive Cycle.—Hunscher and her associates extended a case study over a period of eight years of child bearing and child rearing in a woman when she and her children were known to enjoy buoyant health. Uninterrupted nitrogen metabolic responses during the last half of fetal development and the physiologic preparation of the maternal body for lactation and the extension of these observations into parturition, puerperium and eight weeks of lactation showed where some of the stresses and strains of maternity lay. The results confirm previous considerations derived from intermittent balances in two former reproductive cycles in the same woman. During the last 145 days in gestation there was an average net storage of 3.1 Gm. and a maternal retention of 2.6 Gm. of nitrogen daily, resulting in a total observed accumulation of 446 Gm. at term. On the day of delivery the chemically determined maternal loss in blood, placenta, amniotic fluid and vomitus amounted to 46, 20.1, 0.08 and 0.24 Gm. of nitrogen, respectively; the total loss from the body beyond the food consumed amounted to 54.6 Gm. of nitrogen in addition to that contained in the fetus. The nine daily balances during the lying-in period showed an average daily loss of 5 Gm. of nitrogen. From the tenth to the fifty-third day of lactation there was an average daily loss of 0.87 Gm. of nitrogen. By the fifty-third day of milk flow the gestatory reserve nitrogen had been reduced by delivery, puerperium and lactation losses of 54.6, 44.6 and 38.3, respectively, leaving a total of 310 Gm. of nitrogen stored only in the last half of pregnancy. When the approximate fetal content of 58.6 Gm. of nitrogen is deducted from the final maternal reserve, the accountable losses of the reproductive cycle by the fifty-third day of lactation had left a maternal reserve of 250 Gm. of nitrogen for future dissipation or enrichment of the maternal body at termination of the reproductive cycle.

Mushroom Protein Is Incomplete.—Quackenbush and his co-workers studied the nutritive properties of the mushroom Agaricus campestris by feeding the mushrooms to albino rats. Diets that contained mushrooms were consumed in subnormal quantities, and consequently growth was subnormal. Exceptions to this general result were observed when mushrooms were fed to animals that were depleted in vitamin B or G. Mushrooms were found to be a relatively good source of vitamins B and G. Levels of 10 and 5 per cent of the diet on a dry weight basis supplied sufficient vitamins B and G, respectively, to support satisfactory growth. The data indicate that a diet containing 10 per cent of mushrooms as the only source of vitamin B is deficient in some factor other than vitamin B or G. Mushroom protein is incomplete.

Antirachitic Activity of Vitamin D Milks.—The results of the experiments of Haman and Steenbock show that for the chick and per unit of vitamin D: 1. Irradiated milk, cod liver oil and irradiated cholesterol are of approximately the same order of effectiveness. 2. Yeast milk is approximately one-tenth as effective as irradiated milk. This difference was confined to the respective butter fat fractions and was not influenced by the skimmed milk fraction. 3. The constituents of milk as a vehicle for vitamin D do not influence its effectiveness. 4. The experiments give no support to the possibility that the baby chick could be used to greater effectiveness than the rat for ascertaining the degree of antirachitic effectiveness of different vitamins D for the human being.

Journal of Pediatrics, St. Louis

7: 735-886 (Dec.) 1935

The Physician's View of Health Examinations. J. D. Boyd, Iowa City. —p. 735.
*Congenital Scurvy: Case Report. Deborah Jackson and E. A. Park, Baltimore.—p. 741.
*Scarlet Fever Immunization by Inunction. M. L. Ripps, Elizabeth, N. J.—p. 754.
Application of Recent Theories in Treatment of Undescended Testes. J. Huberman, Newark, N. J., and H. H. Israeloff, Irvington, N. J. —p. 759.
Suppurative Arthritis Due to Hemophilus Influenzae: Case Report. J. C. Peterson, Nashville, Tenn.—p. 765.
Allergic Bronchopneumonia. H. Miller, G. Pincus, B. F. Feingold, Los Angeles, and T. B. Friedman, Chicago.—p. 768.
Adenomatous Polyp of the Right Main Bronchus Producing Atelectasis. P. Rosenblum and R. I. Klein, Chicago.—p. 791.
*Third Generation Syphilis. H. A. Rosenbaum and H. L. Faulkner, Chicago.—p. 797.
Congenital Heart Disease: Clinical Analysis of Seventy-Five Cases from the Johns Hopkins Hospital. C. B. Leech, Providence, R. I.—p. 802.

Congenital Scurvy.—Jackson and Park discuss observations on a baby of 20 days in whom the lesions in the bones were exactly like those present in the infant suffering from acquired scurvy. Every histologic manifestation in the skeleton found in acquired scurvy was present in this congenital case: lattice formation, fracture of the lattice with fibrinogen and collagen leakage, cessation of osteoblastic activity, destructive

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processes in the sublattice region, migration of the marrow cells from the ends of the growing bones with exposure of the embryonal-like connective tissue, internal and subperiosteal hemorrhage, and thinning and atrophy of the cortex in the lattice region with fracture. The authors state that the photomicrographs of the lesions in acquired scurvy compared with those of their case are so similar as to be interchangeable. There cannot be the slightest doubt, therefore, that the case reported is one of congenital scurvy. The severity of the lesion at the various cartilage shaft junctions corresponded with the rate of growth. If the rate of growth was slow enough at the end of a bone, the signs of the disease did not appear. The case indicates that in scurvy the lattice must be so fragile that it cracks and breaks from the strain of ordinary movement or support of the arms and legs. Fractures of the lattice in scurvy are far more general than is popularly thought and are probably present in every case in which the disease has progressed far enough to be recognizable roentgenologically. They must precede epiphyseal separation for some time.

Scarlet Fever Immunization by Inunction. — Ripps tested 564 children, ranging in age from 1 to 16 years, 213 of whom were Dick positive. Most of these children were residents of four orphan institutions; the remainder were obtained from private practice and the hospital clinic. Dick toxin, prepared from the N. Y. 5 (Dochez strain) of a potency of 24,000 skin test doses was mixed with 2 cc. of plain rose water ointment or anhydrous wool fat. All the Dick positive children were given five massages over the entire back at intervals of one week. Preceding the rubs, the backs were cleansed with alcohol. For the first two rubbings, inunctions containing approximately 24,000 skin test doses were used and 28,000 skin test doses for each of the last three rubs. There were no general systemic reactions. About 20 per cent of the children showed a mild dermatitis over the parts rubbed after the first application, which was often associated with itching. With the succeeding massages, the skin reactions were less frequent. At no time was the dermatitis distressing. The eruption usually disappeared within two days. A total of 112 Dick-positive children completed the course of massages and were retested at various intervals. Of seventy-five children who received the rose water ointment inunction 66 per cent were immunized. Of thirty-seven children who received the anhydrous wool fat inunction 30 per cent were immunized. Twenty-one children ranging in age from 1 to 3½ years were given rose water ointment inunctions containing 50,000 and 75,000 skin test doses for the first and second rubbings, and 100,000 for each of the remaining three rubs. Four of these were rendered Dick negative. Nine children, whose ages ranged from 4 to 10 years, were given five rubbings at five-day intervals, the skin test doses being 50,000 and 100,000 for the first and second and 150,000 for the remaining three. Only one was immunized. Thirty-two children, who did not become negative after six months, were given three additional rubs with 50,000, 100,000 and 150,000 skin test doses. Only two of these had become negative when tested one year later.

Third Generation Syphilis. — Rosenbaum and Faulkner believe that the two complete family histories which they give fulfil essentially the requirements for proving the existence of third generation syphilis. The grandmothers in both instances are still alive. In one a history of antisyphilitic treatment was obtained for her and her husband in 1910. In the case of the other there was no knowledge of syphilis until the authors' Wassermann and Kahn examinations of the blood were returned positive in 1933. Both the grandfathers are now dead. The causes of death cannot be ascertained, although both of them died suddenly at comparatively early ages. From these two unions, which were in no way consanguineous, children and grandchildren have come under observation. All members of the second and third generations have been examined, and male and female are affected. One member in each second generation escaped the infection. This member is flanked on either side by a brother or sister who has positive blood Wassermann and Kahn tests. The girls, two in each family, have married and borne children. The husband in each case has remained negative clinically and serologically, and none of them gave a history of syphilis. None of the women gave any history or evidence of having acquired syphilis, yet each gave strong positive Wassermann and Kahn reactions. One of these women, however, gave unmistakable evidence of congenital syphilis. She has definite pegging and notching of the upper middle incisors. Likewise her younger brother, who is now 16 years of age, shows the same congenital stigma and has strongly positive Wassermann and Kahn reactions. Evidence of congenital syphilis in physical examinations has not been found in the four other members of the second generation. They have, however, positive Wassermann and Kahn reactions. One or more children from each of the four women of the second generation are under observation because of physical or serologic evidence of congenital syphilis. All the children of the third generation in one family showed this evidence early with physical stigmas and positive Wassermann and Kahn reactions. The children of the third generation in the other family show no marked stigmas.

Journal of Pharmacology & Exper. Therap., Baltimore

58: 377-492 (Dec.) 1935

Wash-Out of Cardiac Glucosides from Frog's Ventricle. G. Kingisepp, Tartu, Estonia.—p. 377.

Spinal Reflexes in Nicotine Poisoning. F. E. Franke and M. Helen Denvir, St. Louis.—p. 390.

Cinchophen and Paramethylphenyl Cinchoninic Acid Ethyl Ester (Tolysin): Comparison of Effects of Administration of Each in Rats. H. G. Barbour and A. Gilman, New Haven, Conn.—p. 400.

Study of Action of Drugs on Bell's Muscle—"Muscles of Ureters." C. M. Gruber, Philadelphia.—p. 412.

Studies of Phenanthrene Derivatives: VI. Amino Alcohols of Ethanolamine and Propanolamine Type. N. B. Eddy, Ann Arbor, Mich. —p. 419.

Comparison of Actions of Dilaudid Hydrochloride and Morphine Sulfate on Segments of Excised Intestine and Uterus. C. M. Gruber, J. T. Brundage, A. DeNote and R. Heiligman, Philadelphia.—p. 430.

Action of Posterior Pituitary Hormone on Blood Sugar of Rabbit. H. C. Ellsworth, Montreal.—p. 435.

*111. Studies in Obesity: Effect of Dinitrophenol on Blood Velocity. M. G. Wohl and L. N. Ettelson, Philadelphia.—p. 439.

State of Bismuth in Body Fluids and Tissues. P. J. Hanzlik and A. P. Richardson, San Francisco.—p. 447.

The Fate of Procaine in the Dog. J. G. Dunlop, Rochester, Minn. —p. 464.

Effect of Dinitrophenol on Blood Velocity.—Wohl and Ettelson determined the blood velocity in thirty-three obese patients. The basal metabolic rate of these patients varied from minus 25 per cent to plus 16 per cent, the average being minus 6.5 per cent. The average arm to tongue circulation time was 13.3 seconds. Obesity alone had no appreciable effect on the circulation time, if it is assumed that the normal limits are between ten and fifteen seconds. In fourteen cases, dinitrophenol was administered orally in doses of 300 mg. a day for periods varying from one to five weeks. In seven cases acceleration of the blood flow occurred, averaging 3.3 seconds per patient, while in the remaining seven cases no significant change in the blood velocity could be demonstrated. In no instance was there a slowing of blood flow while dinitrophenol was administered. In the majority of the fourteen patients receiving dinitrophenol there were weekly losses of weight even though no attempts at restriction of diet and fluid intake were made. In other instances, however, the total loss of weight over a period of several weeks was no greater than that which has occurred on high protein, subcaloric diets without medication of any kind; and in one patient a gain of 5½ pounds (2.5 Kg.) over a period of two weeks was observed, during which time the basal metabolism was at a level of plus 60 per cent. This patient consumed large quantities of fluids in an attempt to relieve epigastric burning sensations which the drug produced. In two cases in which several metabolism readings were made, a drop was seen after the primary elevations caused by the drug. One patient, after four weeks of dinitrophenol, had a basal metabolic rate of plus 40 per cent. The drug was continued for two more weeks, at the end of which time the rate was plus 20 per cent. The course of the other patient was quite similar. The author cannot offer a satisfactory explanation at present for this fall in metabolism. Skin rashes occurred in six of the group, the incidence being higher than that reported by Tainter, Stockton and Cutting. In one patient the drug produced so many untoward symptoms that it was necessary to discontinue its use before blood velocity tests could be completed.

Journal of Urology, Baltimore

34: 499-740 (Dec.) 1935

History of Western Branch Society, American Urological Association. M. B. Wesson, San Francisco.—p. 499.
Unusual Conditions Simulating Perinephric Abscess: Report of Ten Cases. C. F. Rusche and S. K. Bacon, Hollywood, Calif.—p. 504.
Lymphatics of Lower Urinary and Genital Tracts: Experimental Study, with Especial Reference to Renal Infections. D. W. MacKenzie and A. B. Wallace, Montreal.—p. 516.
*New Surgical Procedure for Treatment of Polycystic Kidneys. A. E. Goldstein, Baltimore.—p. 536.
Compensatory Renal Hypertrophy. R. B. Allen, New York.—p. 553.
Anomalous Relationship of Right Ureter to Vena Cava. A. Randall and E. W. Campbell, Philadelphia.—p. 565.
Cause and Treatment of Noncalculous Ureteropelvic Obstructions: Report of Sixty-Six Operated Cases. R. B. Henline, New York.—p. 584.
Total Urethrocystectomy in the Female: New Technic. H. B. Freiberg, Cincinnati.—p. 615.
Atypical Carcinoma of Urinary Bladder Simulating Myosarcoma: Report of Two Cases and Review of Literature. S. M. Rabson, New York.—p. 638.
*Summary of an Experimental Research on Control of Benign Prostatic Hypertrophy and Preliminary Clinical Report. W. E. Lower, W. J. Engel and D. R. McCullagh, Cleveland.—p. 670.
Further Studies in Endocrinologic Relationships of Prostatic Hypertrophy: Effect of Castration on Suburethral Glands in Posterior Urethra of the Rat. C. L. Deming, R. H. Jenkins and G. Van Wagenen, New Haven, Conn.—p. 678.
Sarcoma of the Prostate in Infants: Case Report and Brief Review of Literature. E. H. Ray, Lexington, Ky.—p. 686.
Relation of Interstitial Cells of Testis to Prostatic Hypertrophy. M. Van Buren Teem, Rochester, Minn.—p. 692.
*Carcinoma of Vas Deferens: Report of Case. G. J. Thompson and F. Pilcher Jr., Rochester, Minn.—p. 714.
Injuries of Posterior Urethra. H. W. Martin, Los Angeles.—p. 718.
Urinary Proteins: Appearance of Kidney Protein in Urine of Some Cases of Severe Chronic Glomerular Nephritis. G. Gilman, Chicago.—p. 727.

Surgical Procedure in Polycystic Kidneys. — Although cases of unilateral polycystic kidneys are reported, Goldstein believes that the condition is always bilateral, either at the time of operation or subsequently. In view of the fact that medical regulation of the uncomplicated polycystic degeneration of the kidneys has not resulted in any considerable benefit to the patient, he feels that radical methods are indicated in many instances. If early surgery was performed in some of these cases before complications arise, life might be prolonged and much suffering avoided. When the abdominal route is employed, a pararectus high Gibson incision is made down to the peritoneum. The peritoneum is pushed medially and the kidney with its fatty layers is exposed. It is then freed laterally on each side. The true capsule is incised lengthwise, some of the cysts being opened. Numerous large cysts are then opened and the walls of many are excised. As many as possible of the cysts are drained. After this procedure the kidney cortex is split from one pole to the other. The incision should not go through the calices if possible, and certainly not into the pelvis. With the kidney split, more cysts are drained with the needle and syringe. The medial half of the longitudinal portion of the kidney is then sutured to all the layers of tissue above and medial to it, the peritoneum being pushed downward and inward. The other half of the longitudinal split portion is treated likewise. The wound is closed with interrupted plain catgut sutures. At the end of the operation the kidney is well immobilized and the split cortical portion is exposed. The split halves are approximated to the skin edges. Medially the peritoneum is underneath the muscular structure of the abdomen as well as being in close apposition to the hilus. Laterally the same situation exists, except that the kidney is not in apposition to the peritoneum. This leaves the organ free so that the cysts may be punctured with a needle and syringe under visualization at will, after healing. When the lumbar route is employed the same steps are carried out except that the immobilization is in the lumbar rather than the abdominal region. The entire length of the incision in the kidney in both instances is left open and sutured to the skin. Wet gauze is applied to the wound, which is kept open as long as possible. Granulation takes place in about four weeks, after which the wound is permitted to heal over. This takes between six and ten weeks. A large scar forms over the wound.

Research on Prostatic Hypertrophy. — Lower and his co-workers summarize the pertinent facts that have formed the basis for a theory as to the cause of benign prostatic hypertrophy and constitute the background for the rationale of the therapy that they employed in a group of clinical cases. During the course of these and other experiments, evidence was produced that indicated the probability of the existence of a testicular hormone (which they call "inhibin"), which would depress the gonadotropic activity of the pituitary gland. Its clinical use was begun about ten months ago and forty patients with prostatic hypertrophy were treated with it. The ages of the patients ranged from 51 to 80 years. All cases presented the typical symptoms of prostatic obstruction, such as hesitancy, slowing of the urinary stream, nocturia and frequency. The majority of cases were hospitalized for preliminary investigation. After critical analysis of the forty patients, the authors consider twenty-six (65 per cent) markedly improved to the point at which they are virtually symptom free. Eight patients with complete retention now enjoy urinary comfort, five without any residual urine, two with only 30 cc. and one with 50 cc. residual urine. In all the other cases except one the residual urine has diminished or disappeared, and in that one only 30 cc. was present at the beginning of treatment. Nocturia has been the symptom from which these patients showed the most consistent improvement, though each patient made the unqualified statement that there was greater ease in voiding and a sense of complete emptying of the bladder. In many patients the kidney function improved and elevated blood ureas returned to a normal level. Many patients expressed a feeling of general well being and greater endurance. No improvement could be noted in fourteen patients. A careful analysis of the unimproved cases yields no consistent factor to explain their failure to respond. In general, the symptoms were of longer duration, the average duration of symptoms in this group being 5.5 years as against 3.1 years in the improved cases. The incidence of urinary infection was relatively much higher. Five of the fourteen unimproved patients had large, atonic, chronically overdistended bladders. A small sclerotic type of gland appeared to account for the failure in two other cases. From 10 to 20 per cent of enlarged prostates may be expected not to be benign enlargements, and this may account for some of the failures.

Carcinoma of Vas Deferens. — Thompson and Pilcher point out that carcinoma apparently never develops as a primary tumor of the vas deferens. On first thought it would seem possible that carcinoma might frequently occur in the vas deferens as an extension of the malignant condition in the prostate gland, seminal vesicles or testes. The rarity of such extension, however, is attested by the fact that a thorough search of the literature disclosed only the references to Young, who found, in a few cases, involvement of a portion of the vas deferens adjacent to the prostate gland. The secondary extension of prostatic carcinoma along the entire length of the vas deferens as far as the testes has never been described. Such a case, in which the process could be palpated within the scrotum, is reported.

Laryngoscope, St. Louis

45: 911-980 (Dec.) 1935

The Sphenoid on Parade. J. A. Cavanaugh, Chicago.—p. 911.
Recording of Clinical Labyrinth Tests. J. H. Hulka, Long Island, N. Y.—p. 929.
*Analysis and Report of Ten Consecutive Cases of Sinus Thrombosis, with Recovery. G. D. Wolf, New York.—p. 940.
Clinical Biochemistry in Treatment of Ear, Nose and Throat Diseases. F. B. Blackmar, Columbus, Ga.—p. 948.
Dry Mouth, Vile Taste, Calculus in Submaxillary Gland. P. S. Stout, Philadelphia.—p. 962.
New Instruments. J. D. Kernan, New York.—p. 963.
New Instrument for Treatment of Peritonsillar Abscess. I. B. Goldman, New York.—p. 965.

Sinus Thrombosis.—Wolf accounts for the result in his ten consecutive cases of sinus thrombosis with no mortality as due in part to the following considerations: 1. The patients were in good general condition and were seen early in the course of the disease. 2. In all instances the involvement was unilateral, thus pointing definitely to the side affected. 3. The splendid cooperation on the part of the laboratory, the house staff and the nursing staff was a factor of no mean importance in securing the favorable results. 4. In none of these cases was a mastoidectomy performed simultaneously with the obliteration of the lateral sinus and the ligation of the jugular vein. Thus prolonged operation with resultant shock to the patient and excessive loss of blood was avoided.

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Medical Annals of District of Columbia, Washington

4: 313-340 (Dec.) 1935

*Meningococcemia: Report of Two Cases, One Fulminating with Rapid Death; the Other with Evidences of Blood Stream Infection for Weeks Before the Onset of Meningeal Symptoms, Recovery. C. B. Conklin, Washington.—p. 313.
Fundamentals of Internal Medicine: Diseases of Nervous System. A. Schneider, Washington.—p. 315.
Jaundice and Ascites with Recovery: Report of Case. J. R. Cavanagh, Washington.—p. 322.
Congenital Arteriovenous Fistula: Report of Case. S. Dessoff and W. K. Angevine, Washington.—p. 324.

Meningococcemia.—During the outbreak of meningitis occurring in Washington during the past winter and spring months, Conklin encountered two cases that illustrate the overwhelming blood infection that sometimes occurs with early demise and the type with prolonged evidence of blood infection with later frank symptoms of meningitis followed by recovery. The first patient, when first seen, was evidently suffering from an acute infectious disease with hemorrhagic manifestations. Everything from typhus to drug dermatitis was suggested by those who saw him. Cerebrospinal meningitis was suggested despite the absence of neurologic clinical evidence. The blood culture and spinal fluid smears and cultures made the latter diagnosis certain. The other patient represents the type showing meningococcemia for days before meningitis develops. Although the organism was not recovered in this case, the resulting situation and the initial classic picture make the presence of meningococcus in the blood stream highly evident. The symptom grouping of irregular temperature, joint pains, chills and sweats and petechiae, all common factors in a number of infections of the blood stream, should call for frequent blood cultures with the idea in mind of the possibility of a meningococcic infection. When the patient was discharged from the hospital he was thoroughly clear mentally, able to stand alone and, except for nocturnal enuresis, in remarkably good condition. He had had thirty-one spinal taps, a total of 395 cc. of antimeningococcus serum had been administered, and five blood transfusions, frequent intravenous injections of dextrose and two of magnesium sulfate had been given.

Missouri State Medical Assn. Journal, St. Louis

32: 461-506 (Dec.) 1935

*Chronic Pyelonephritis in Infants and Children. J. R. Caulk, St. Louis.—p. 461.
Xanthomatosis: Schüller-Christian's Disease. J. Dauksys, Excelsior Springs.—p. 466.
Principles of Safety in Thyroid Surgery. C. F. Sherwin, St. Louis.—p. 473.
Clinical and Pathologic Studies of Coronary Disease: Analysis of Eighty-Eight Cases Observed in One Thousand Necropsies. E. W. Wilhelmy and F. C. Helwig, Kansas City.—p. 476.
Survey of Management of Intracapsular Fracture of Neck of Femur. F. D. Dickson, Kansas City.—p. 481.

Chronic Pyelonephritis in Children.—Caulk states that the most common cause of chronic pyelitis in infants and children is obstruction at the internal orifice of the bladder resulting from congenital valves or contractures. Regurgitation of the vesical contents into the ureters and kidney pelves was present in 46 per cent of his twenty-six cases. One half of these occurred in the presence of a high, the remaining half with small, residual urine. Operations were performed on sixteen of these children, fourteen cautery punch and two suprapubic; six were for valves, one for valve and bar, seven for contractures of the vesical neck and two for lobules. The child's punch was used in nine instances and the baby punch in five. Thirteen of the operations have given perfect results. Two were decidedly improved but not completely satisfactory. The parents refused to allow further surgical procedures. One case, in which there was pronounced spina bifida with a very thin delicate valve, was not improved. The removal of the valve gave no benefit. The results following the removal of the obstruction through the urethra in children by means of the punch have been the most gratifying that the author has had in surgery. The end results have been satisfactory; invalid children have been restored to excellent health with practically no complications or untoward effects and with no mortality. This series of cases of obstruction of the neck of the bladder treated by transurethral removal is, as far as he can determine, the only one so far reported. He urges the profession to suspect such mechanical causes for the majority of persistent or recurrent cases of pyelitis in infants and children and to seek early investigation for such cases so that prompt corrective measures may be applied.

New England Journal of Medicine, Boston

213: 1159-1214 (Dec. 12) 1935

Diaphragmatic Hernia in Children: Report of Thirteen Operative Cases. P. E. Truesdale, Fall River, Mass.—p. 1159.
Bronchoscopy and Differential Diagnosis of Tuberculosis, Lung Abscess and Bronchiectasis. G. A. Rice, Holden, Mass.—p. 1173.
*Progressive Idiopathic Pulmonary Fibrosis Associated with Emphysema. A. O. Hampton, Boston.—p. 1174.
Mycotic Infection of Lungs in Differential Diagnosis of Pulmonary Tuberculosis. H. J. Bakst, Boston.—p. 1177.
Differential Diagnosis of Pulmonary Tuberculosis and Pulmonary Circulatory Changes. P. D. White, Boston.—p. 1179.
Differential Diagnosis of Pulmonary Tuberculosis. F. T. Lord, Boston.—p. 1181.
Factors in the Management of Constipation. F. E. Clow, Wolfeboro, N. H.—p. 1187.

Progressive Idiopathic Pulmonary Fibrosis.—Hampton discusses cases of chronic pulmonary disease about which little is known and which are often misinterpreted as pulmonary tuberculosis. Various other clinical diagnoses are made, such as asthma, bronchiectasis, heart disease, malignant conditions and pneumoconiosis. While he speaks only of cases in which postmortem examinations have been made, even a complete pathologic examination does not allow accurate classification. Most of the postmortem observations are similar and are characterized by diffuse interstitial fibrosis, distortion and dilatation of the bronchi, diffuse emphysema and, in the advanced cases, emphysematous blebs. The pulmonary changes seen at the routine roentgen examination, which are due to idiopathic fibrosis, are quite similar to those seen associated with tuberculosis. The chief difference is that usually tuberculosis is more localized and less likely to involve the entire lung fields. Fibrosis, however, may occur locally in both infraclavicular regions and, as in the case of pneumoconiosis, the upper lobes are quite commonly involved. Emphysematous blebs add to the confusion of the roentgen picture, in that they are often quite similar to the cavitation of tuberculosis. Pleural thickening and even pleural effusion are also common. The thin walled dilated bronchi and confluent emphysematous alveoli that occur often produce a diffuse honeycombed appearance on the roentgenogram. This picture is rarely seen in tuberculosis, and there are certain other helpful differential points in the roentgen examination which are obtained only by fluoroscopy and oblique and lateral roentgenograms.

Texas State Journal of Medicine, Fort Worth

31: 483-544 (Dec.) 1935

Treatment of Burns. S. J. Seeger, Milwaukee.—p. 488.
Diathermy in Treatment of Primary Pneumonia. J. G. Jenkins, Temple.—p. 494.
Irradiation Methods in Treatment of Cancer of Face and Lips. J. M. Martin, Dallas.—p. 497.
Recognition of Radiology as One of the Specialties in Medicine. C. P. Harris, Houston.—p. 500.
Obstetric Analgesia. S. E. Russ, San Antonio.—p. 501.
*Puerperal Eclampsia. E. L. King, New Orleans.—p. 503.
Preoperative and Postoperative Treatment in Gynecologic Patients. H. E. Lancaster, Beeville.—p. 507.
Malformation of Vagina: Report of Four Cases. W. F. Armstrong, Fort Worth.—p. 511.
Diagnosis and Treatment of Trachoma. E. L. Goar, Houston.—p. 514.
Weather Condition and Blood Plasma Volume. J. H. Black, Dallas.—p. 516.

Puerperal Eclampsia.—King considers the prophylaxis of eclampsia under three heads: adequate antepartum care, prompt and adequate treatment of the toxemia and induction of labor in patients not responding satisfactorily to treatment. Eclampsia occurs in about 1 per cent of the cases coming to a maternity hospital and in from 0.1 to 0.2 per cent of patients in private practice. It is more frequently found in primiparas. The maternal mortality rate varies from 10 to 20 per cent, while the fetal rate is from 30 to 50 per cent. Once eclampsia has developed, a conservative plan of treatment should be adopted and carefully followed. In an occasional case cesarean section, under local or spinal analgesia, may be performed. The summaries of the various conservative methods for the treatment of eclampsia given include the Stroganoff, Dublin (Rotunda), Schwarz-Dorsett, sodium amytal, Lazard, and Miller and Martinez procedures.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

47: 497-552 (Dec.) 1935

Eczema: Its Definition and Its Etiology. H. G. Adamson.—p. 497.
Definition and Etiology of Eczema. J. T. Ingram.—p. 502.
Panniculitis: Its Place in Nosology. H. Keil.—p. 512.
Paraffinoma: Case. M. Bolam.—p. 523.

British Journal of Radiology, London

8: 733-796 (Dec.) 1935

Lung Tomography. G. Grossmann.—p. 733.
*Leukocytic Variations in Radium Workers (Part II). D. R. Goodfellow.—p. 752.
Superior Pulmonary Sulcus Tumor. A. E. Connolly.—p. 781.
Action of X-Rays on Lactate, Glucose, Citrate and Succinate Dehydrogenases. R. E. Havard.—p. 787.

Leukocytic Variations in Radium Workers.—Goodfellow performed systematic blood counts at intervals of from two to four weeks on thirty-two workers in radium and x-rays. The periods of observation varied from six months to three years according to the duration of each individual's appointment. It has been found that there is only one sign of early overexposure that is common to all workers. This is a leukopenia due to a reduction in the number of circulating neutrophils. There is evidence that different individuals vary in their susceptibility to the effects of irradiation, and those who are more sensitive exhibit an absolute lymphocytosis with an absolute neutropenia as a first sign of overexposure. Others, who are less sensitive, exhibit a lymphocytopenia with a monocytosis under similar circumstances. Eosinophilia has frequently been seen as a result of overexposure, and abnormal or embryonic leukocytes have occasionally been seen in the blood of certain workers. Vacations of less than four weeks do not appear to be of value in restoring the leukocyte count of an overexposed worker to a normal level. The value of the information obtained by these routine blood counts has been greatly enhanced by periodic clinical examination of these subjects.

Guy's Hospital Reports, London

85: 249-376 (July) 1935

Sir Maurice Craig, C.B.E., M.D., F.R.C.P. H. C. Cameron.—p. 251.
Chronic Constrictive Pericarditis: I. Introductory Note. P. D. White.—p. 258.
Id.: II. Observations on Diseases of Orifice and Valves of Aorta (1842). N. Chevers.—p. 259.
Id.: III. Adherent Pericardium as Cause of Cardiac Disease (1871). S. Wilks.—p. 264.
Id.: IV. Biographic Note on Dr. Norman Chevers. M. Campbell.—p. 274.
*Aortic Stenosis: Its Etiology and Morbid Anatomy. A. J. Gibbs.—p. 275.
Psychologic Approach to the Problem of Asthma and the Asthma-Eczema-Prurigo Syndrome. C. H. Rogerson, D. H. Hardcastle and K. Duguid.—p. 289.
Psychogenic Factor in Asthma: Problem in Methodology. E. B. Strauss.—p. 309.
Ulcerative Colitis. A. F. Hurst.—p. 317.
Brittle Bones with Blue Sclerotics in Fifteen Members of a Family. H. G. McGregor.—p. 356.
Operative Treatment of Vertigo. W. M. Mollison.—p. 361.
Effects on Rabbit of Repeated Large Intravenous Doses of Glucose. H. E. Harding.—p. 372.

Aortic Stenosis.—Gibbs studied and analyzed the clinical records and morbid anatomy of twenty-seven patients. Twenty-six have died and the notes of the necropsies have been studied; in fifteen of these the hearts had been preserved and were available for further examination. Of the two causes of aortic stenosis most likely to be encountered, rheumatism predominates in patients less than 50 years of age and arteriosclerosis in patients more than 50. Syphilis is practically never a cause, and congenital defects or infantile endocarditis only rarely. In the rheumatic group aortic stenosis is as common in women as in men, but in the arteriosclerotic group it is almost confined to men. Calcification of the valve cusps, essential to the production of aortic stenosis in arteriosclerotic patients, may be a contributory factor in aortic stenosis of rheumatic origin, though more commonly in men than in women, owing to secondary arteriosclerotic changes. While calcification may result from diminished blood supply to the valve ring, as a result of inflammatory or degenerative changes in the nutrient vessels, healed valvulitis and excessive strain also produce it, but at the free margin of the cusps instead of in the fibrous ring. The symptoms of aortic stenosis are in no way characteristic and the classic signs are often modified and obscured by the presence of other valvular lesions and by failing compensation. While the majority of patients suffering from rheumatic aortic stenosis in combination with mitral disease die at comparatively early ages (less than 50), having been invalids for a number of years, those patients suffering from arteriosclerotic aortic stenosis may live to a reasonable old age if careful to avoid any excessive cardiac strain.

Indian Journal of Medical Research, Calcutta

23: 317-572 (Oct.) 1935

*Pathology of Some Uncommon Enlargements of Lymph Nodes Illustrated by Five Cases. A. N. Goyle, A. Vasudevan and K. G. Krishnaswamy.—p. 317.
Bacteriologic Studies in Acute Lobar Pneumonia Due to Pneumococcus and Bacillus Pneumoniae Friedländer. S. S. Bhatnagar and K. Singh.—p. 337.
Vitamin C Content of Some Indian Food Materials. R. K. Chakraborty.—p. 347.
Studies on Protein Fractions of Blood Serums: Part IV. Epidemic Dropsy. R. N. Chopra, S. N. Mukherjee and J. C. Gupta.—p. 353.
Opium Habit in India: Studies on Physical and Mental Effects Produced by Opium Addiction. R. N. Chopra and G. S. Chopra.—p. 359.
Experimental Investigation into Action of Venom of Echis Carinata. R. N. Chopra, J. S. Chowhan and N. N. De.—p. 391.
Morphologic Studies on Rabies: Part II. Negri Bodies in Hippocampus Major in Street Virus Infections. H. E. Shortt.—p. 407.
Presence of Leishmania Donovani in Nasal Secretion of Cases of Indian Kala-Azar. H. E. Shortt and C. S. Swaminath.—p. 437.
Hookworm Incidence and Intensity in South India by Districts. W. P. Jacocks, J. F. Kendrick and W. C. Sweet.—p. 441.
Nonglucose Reducing Bodies in Blood: Part II. Vitamin C Fraction. V. K. Narayana Menon.—p. 447.
Hematologic Studies in Indians: Part IV. Fractional Gastric Analyses in Normal Indians. L. E. Napier and C. R. Das Gupta.—p. 455.
Note on Methylene Blue Reduction Test for Differentiating Between Coli and Aerogenes Types of Lactose-Fermenting Organisms in Water and Feces. T. N. S. Raghavachari and P. V. Seetharama Iyer.—p. 463.
Preliminary Epidemiologic Study of Cholera, with Especial Reference to Assam and Suggestions for Further Investigations. E. M. Rice.—p. 467.
Preliminary Note on Investigation of Trachoma by Technic of Culture on Chorio-Allantoic Membrane of Embryo-Chick. C. G. Pandit, R. E. Wright, R. Sanjiva Rao and Satyanathan.—p. 475.
Absorption of Rice and Atta Protein in Digestion and Question of Fecal Residue as Medium for Intestinal Putrefaction. H. E. C. Wilson and S. L. Mookerjee.—p. 483.
Some Possible Factors in Causation of Vesical Calculus in India: Composition of Human Urine on Different Diets. H. E. C. Wilson and S. L. Mookerjee.—p. 491.
Spectrographic Analysis of Thyroid Glands. N. K. De.—p. 501.
Vitamin A Activity and Ultraviolet Light: Simple Spectrophotometric Method of Assaying Vitamin A and Carotene. N. K. De.—p. 505.
Effects of Some Products of Digestion and Accessory Substances on Rhythmic Contractions of Isolated Mammalian Intestines. R. K. Pal and S. Prasad.—p. 515.
Applicability of Flocculation Tests for Standardization of Antivenene. S. M. K. Mallick.—p. 525.
Serologic Variations in Vibrios from Noncholera Sources. J. Taylor and M. L. Ahuja.—p. 531.
Population Problem in India. A. J. H. Russell and K. C. K. E. Raja.—p. 545.

Pathology of Some Uncommon Enlargements of Lymph Nodes.—Goyle and his associates discuss five cases of universal and local enlargement of lymph nodes. Histologically, the main features of the first case are hyperplasia of the bone marrow and the presence in the viscera of aggregations of small lymphocytes, many of which, however, lack the typical nuclear structure of the ordinary small lymphocytes. The hyperplasia has been regarded as lymphoblastic. The total number of leukocytes in the blood stream was not increased and the case has been diagnosed as aleukemic lymphadenosis. A discussion on the origin and nature of the proliferating cells is presented with the tentative conclusion that they are derived from the multiplication of the small lymphocytes. Two cases of endothelioma of lymph nodes by Ewing are cited. Littoral cell sarcoma appears to be a more suitable designation for tumors of this kind. In one case there was universal enlargement of the lymph nodes; in the other there was localized growth. Histologically, the cases are characterized by the presence of large polyhedral cells with hyperchromatic nuclei which show mitoses. In view of the resemblance of their microscopic picture to secondary

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carcinoma a careful search was made for a primary focus, but none was discovered. Attention is drawn to some peculiar clinical and histologic features of this type of new growth and its association with chronic granulomatous infections. The other two cases are of systemic enlargement of the lymph nodes of neoplastic nature. The cells in one case were elongated and spindle shaped, whereas in the other they were more rounded, but some of the cells were spindle shaped. Reasons are advanced for their derivation from the reticular cells. Tumor is named reticulum cell sarcoma. A classification of the hyperplastic and neoplastic conditions of the lymph nodes is given.

Irish Journal of Medical Science, Dublin

No. 110: 621-668 (Nov.) 1935

Humanity's Debt to Animal Experiment. W. Boxwell.—p. 621.
Recent Developments in Prostatic Surgery. T. J. D. Lane.—p. 639.
Tendencies in Present Day Medicine. V. M. Synge.—p. 653.
Portable Dark Room for Use in the Johannsen Operation.—p. 658.
Serum Phosphatase Estimations in Cancer Cases. E. Harvey.—p. 662.

Journal of Tropical Medicine and Hygiene, London

38: 289-300 (Dec. 2) 1935

Insulin and Diets in Treatment of Diabetes Mellitus. S. Vatcher and M. Douglas.—p. 289.
Some Anomalies Met With in a Series of Three Hundred Bloods Examined with a View to Blood Grouping. A. J. Noronha and L. B. Kothagi.—p. 295.

Lancet, London

2: 1155-1216 (Nov. 23) 1935

*Integration of Endocrine System. W. Langdon-Brown.—p. 1155.
Value of Gastroscopy. H. C. Edwards.—p. 1161.
Cysts of Semilunar Cartilage of Knee. J. P. Hosford.—p. 1166.
*Incidence of Congenital Abnormalities in Genito-Urinary Tract as Seen in Five Hundred Consecutive Intravenous Pyelographies. I. B. Barclay and J. B. Baird.—p. 1169.
Use of Cambridge Electrode Jelly. H. B. Russell.—p. 1172.

Integration of Endocrine System. — Langdon-Brown believes that there is an autonomous activity of the glands of the endocrine system according to the steady biochemical demands of the body but that their activity can be profoundly modified and extensively controlled by centers in the diencephalon which are largely concerned with emotional expression. These centers may operate directly through the sympathetic nervous system or indirectly through the chemical activities of the anterior pituitary. The anterior pituitary forms two basic secretions probably of a protein character, one being stimulating, the other inhibitory, in effect. They correspond to Sharpey-Schafer's original distinction between a hormone and a chalone. The former may be produced by the eosinophil, the latter by the basophil cells. These basic secretions are capable of chemical modification according to the needs of the body and are then ready to stimulate or restrain the secretion of simpler hormones by the other endocrine glands, including the postpituitary. It may be, as Zondek maintains, that hormones circulate in an inactive form, becoming activated only when they reach their destination. This might explain some of the observations on the alleged hormone-antihormone linkage. Their destination is decided by some peculiar receptive capacity in the structure on which they act, catalytically or otherwise. What determines that receptive capacity is not known as yet. But the whole process appears to be a special case of the general law that nervous stimuli, whether passing from the diencephalon to the pituitary or down neurons to preganglionic and postganglionic endings, act through the intermediary of chemical substances locally produced. Further support for this view may be found in the fact that in one instance epinephrine is the final product of either hormone or nervous activity.

Congenital Abnormalities in Genito-Urinary Tract. — In an analysis of 500 consecutive cases referred for intravenous pyelography, Barclay and Baird have found the following congenital and other abnormalities: unilateral fused kidney showing two normal ureteral orifices with the left ureter crossing to the right side; congenital absence of the left kidney with complete reduplication of the pelves and the ureters of the right kidney; six cases of bilateral double ureters and pelves (two with complete and four with incomplete reduplication); seven cases of unilateral double ureters and pelves (two with complete and five with incomplete reduplication); a case of probable valvular ureteral obstruction, and two cases showing unilateral true renal ptosis. The possible production of the foregoing anomalies is discussed.

Medical Journal of Australia, Sydney

2: 643-674 (Nov. 9) 1935

Some Aspects of Acute Nephritis in Children. M. T. Cockburn.—p. 643.
*Membranous Oropharyngitis. B. Hiller.—p. 649.
Influenza Virus Isolated from Australian Epidemic. F. M. Burnet.—p. 651.
Treatment of Prostatic Obstruction, with Especial Reference to Endoscopic Resection. I. B. Jose.—p. 653.
Treatment of Acne Vulgaris, with Especial Reference to X-Rays. J. C. Belisario.—p. 656.

Membranous Oropharyngitis.—During the last three years Hiller has observed five cases of a condition which he terms a membranous oropharyngitis. Actual organisms found on culture included hemolytic streptococcus, Streptococcus viridans, short-chained nonhemolytic streptococcus, Staphylococcus aureus and albus, and pneumococcus. The organism that appears to be the most consistently present is a short-chained nonhemolytic streptococcus. The condition is apparently mildly infectious, as shown by one case, the patient having contracted it from her son. The signs and symptoms show a good deal of local discomfort and dysphagia, the latter being especially marked when the soft palate is involved. Sometimes slight enlargement and tenderness of the upper cervical lymphatic glands occurs. All cases seem to show a tendency for the membrane to appear at first on the anterior pillar of the fauces, usually in discrete patches, which may spread to the soft palate, to the tonsil and occasionally to the posterior pillar of the fauces. But the favored direction of extension is to the gums and into the gingivolabial folds. The membrane is a false one, moderately thin, white and opalescent and always sharply demarcated, its edges being surrounded by a thin band of hyperemia. It lifts easily but is followed by very free hemorrhage from the whole of the bared surface, and it soon reforms. Recrudescence and recurrence are apt to occur. The diseases for which the condition may most easily be mistaken are diphtheria and Vincent's angina. The membrane is paler than is usual in diphtheria, it lifts much more easily and there is no constitutional disturbance. Further, there is more membrane present elsewhere than on the tonsils. A bacteriologic examination is always essential. Diphtheria antitoxin does not have the slightest influence on the condition. A combination of brilliant green and crystal violet is practically a specific for the condition. The following is the formula used for swabbing once or possibly twice a day: 2 per cent crystal violet, 2 per cent brilliant green, 48 per cent ethylic alcohol and 48 per cent water. This quickly clears up the faucial lesions, but those of the gums and the gingivolabial folds take longer. Overtreatment may be responsible for a prolonged course. In addition to the foregoing applications, the following paint is applied twice daily: 3 drachms (12 Gm.) each of tincture of ipecac and of solution of potassium arsenite and 1 ounce (30 cc.) of glycerin. In order to prevent infection of others, sterilization of the patient's articles should be enforced.

Japanese Journal of Experimental Medicine, Tokyo

13: 591-750 (Oct. 20) 1935

Studies on the BCG (First Report). K. Yanagisawa.—p. 591.
Purification of Polluted Oysters. Y. Tokyam and Y. Yasukawa.—p. 601.
Inoculation Experiments with Human Leprosy in Rats: II. K. Nakamura, S. Kobashi and I. Matsumoto.—p. 619.
Studies on Rat Trematodes. N. Ishii.—p. 629.
Observations on Bacillus Vaginalis. S. Okamoto.—p. 631.
Experimental Studies on Differential Diagnosis Between Yaws and Syphilis: I. Manifest Infection of Yaws in Mice. S. Aikawa.—p. 637.
Chemical and Biologic Examination of Acid-Fast Bacteria: II. Examination of Therapeutic Inhibiting Action of Development of Tubercle and Also of the Related Inhibiting Substance of Tubercle Bacilli Killed by Heat. Y. Takeda, K. Ando, C. Hata and B. Miwa.—p. 641.
Quantitative Relation Between Germicides and Bacteria, and Contribution to Knowledge of Nature of Germicidal Action. C. Miyawaki.—p. 661.
Studies on Virus of Lymphogranuloma Inguinale Nicolas-Favre and Durand: Third Report: Studies on Filtration, Especially Ultrafiltration of Virus. Y. Miyagawa, T. Mitamura, H. Yaoi, N. Ishii and J. Okanishi.—p. 723.
Id.: Fourth Report: Cultivation of Virus on Chorio-Allantoic Membrane of Chicken Embryo. Y. Miyagawa, T. Mitamura, H. Yaoi, N. Ishii and J. Okanishi.—p. 733.
Id.: Fifth Report: Resistance of Virus to Heat, Cold and Desiccation, Virus Dilution Experiment, Viruliciding and Allergene Neutralization. Y. Miyagawa, T. Mitamura, H. Yaoi, N. Ishii and J. Okanishi.—p. 739.

Presse Médicale, Paris

43: 1889-1912 (Nov. 25) 1935.

*Nonurate Azotemia and Its Treatment by Urea and Liver Extracts. W. Nonnenbruch and J. Weisev.—p. 1889.
Efficacy of Acetylcholine in Treatment of Traumatic Epilepsy. Fribourg-Blanc, Lassale and Passa.—p. 1892.

Nonurate Azotemia.—Nonnenbruch and Weisev calculated the blood urea by the xanthydrol method of Fosse or the micro method of Bang. The total nitrogen was determined in the trichloroacetic acid filtrate by the semimicro method of Kjehldal. By these means they were able to measure the relative proportions of urea and nonurate nitrogen. Their observations were therefore divided into those in which there was a primary variation in the urea level and those in which the residual nitrogen was the first to vary. They concluded that increase of the residual nitrogen corresponds in liver disease to a lowering of the general condition and reveals a disorder of protein metabolism. The increase in residual nitrogen can also be the result of excessive urea elimination in the course of polyureas. An elevated level of nitrogen can be lowered by all the procedures which increase the level of urea that is accompanied by improvement of the general condition. Increase in the residual nitrogen produced by the administration of amino acids produces a decline in the general condition. Urea, on the contrary, even in small doses, can produce a sudden drop in the residual nitrogen and improve the general condition. In all cases of increased residual nitrogen, and especially in liver disease, attempted treatment with urea and hepatic extracts is indicated.

Revue Médicale Française, Paris

16: 697-788 (Nov.) 1935

Appendicitis and Colitis. Bergeret and Caroli.—p. 703.
Treatment of Tuberculous Salpingitis. A. Richard.—p. 707.
*Treatment of Late Bone Inflammations of War. Sarroste.—p. 707.
Surgery of Diaphragm. G. Menegaux.—p. 719.
Surgery of Meckel's Diverticulum. S. Huard.—p. 727.
Treatment of Gastroduodenal Hemorrhages of Ulcerous Origin. H. Redon.—p. 733.
Difficulties of Treatment of Certain Severe Hyperthyroidisms. S. Blondin.—p. 737.

Treatment of Bone Inflammations of War.—The men who sustained fractures during the war which in subsequent years caused pain, fistulas and other signs of nonhealing are the subject of Sarroste's study. He believes that the term chronic traumatic osteomyelitis is inexact and that the appellation given by him is more appropriate. Four clinical forms can be identified: late single infections, multiple infections, permanent fistulization and intra-osseous abscess. The infection progresses from the surface of the bone into the deeper portions, following the fissures and resulting in local calcium disorders, vascular changes and necrosis. Hence the two classic reactions of bone are present side by side—rarefaction and condensation. Treatment of these late processes has always been difficult and unsatisfactory. A judicious prophylactic treatment of a recent fracture would seem to be the most important factor. In spite of careful handling, these late lesions have occurred in about 30 per cent of the war fractures. The principal methods of treatment of these are the biologic with serums or vaccines, surgery of varying extent and physical therapy. The author feels that carefully chosen surgery is the most important of these methods.

Schweizerische medizinische Wochenschrift, Basel

65: 1221-1240 (Dec. 21) 1935

Functional Effects of Radiation Therapy. A. Rosselet.—p. 1221.
*Venous Pulse. O. Merkelbach.—p. 1225.
Question of Suitability of Unguentum Refrigerans of Pharmacopéia Helvetica V as Cooling Ointment. W. Lutz and A. Hesnel.—p. 1228.
Therapeutic Experiments with Cobra Toxin in Dermatology and Metasyphilis. S. Brambilla.—p. 1233.
Moist Bandage. Schlafli.—p. 1234.

Venous Pulse.—Merkelbach points out that, whereas three decades ago the registration of the venous pulse was frequently resorted to, it is only rarely done today because the electrocardiographic method has largely superseded it. Nevertheless, the author maintains that registration of the venous pulse has still diagnostic significance in that it reveals the circulatory conditions in the right side of the heart and also the venous outflow from the large circulation. He describes the technic of registration of the venous pulse and the normal venous pulse curve, and the time relation between venous pulse, cardiac sounds and electrocardiogram, then the venous pulse in valvular lesions, and reproduces various curves of the venous pulse of patients with mitral insufficiency, tricuspid insufficiency and absolute arrhythmia, or nonsyphilitic aortic insufficiency. He admits that in the diagnosis of rhythmic disturbances of the heart registration of the venous pulse has long been superseded by electrocardiography, but he points out that, as Wenckebach and Winterberg have shown, registration of the venous pulse is of great value in early blocked auricular extrasystoles. In such cases the venous pulse curve clearly shows an A wave, whereas in the electrocardiogram the P wave does not have to be indicated; and under these conditions it is of course impossible for a deformity of the T wave of the preceding ventricular complex to become manifest in the electrocardiogram.

Anales de Medicina Interna, Madrid

4: 1003-1104 (Nov.) 1935

*Postemotional Melanotic Pigmentation. C. Bonorino Udaondo and G. P. Goñalons.—p. 1003.
Glycemia in Acute Pneumopathies. P. A. Buylla and M. Diaz Faes.—p. 1011.
Experimental Serous Inflammation. M. S. Jiménez.—p. 1019.
Heart in Acute Glomerulonephritis. J. Alsina-Bofill.—p. 1035.
*Cholesterolemia and Arterial Hypertension. F. Domenech and A. Lafuente.—p. 1049.
Edemonephrotic and Eclamptic Syndrome Without Convulsions: Case. G. Riesgo del Campo.—p. 1067.

Postemotional Melanotic Pigmentation.—Bonorino Udaondo and Goñalons say that melanoderma is a constant symptom of adrenal insufficiency caused by emotion. A few small pigmented patches, of a light brown at first, appear only on the face and then increase in number and size, intensify in color and cover new areas of the skin as the disease progresses. In rare cases the condition is complicated by a syndrome of hyperpressure, epistaxis, headache, dizziness and obnubilation or by the appearance of dull iridescent white patches of pigmentation during the early hours of the morning. The white pigmentation is caused by a reflex originating in the expansion, contraction and superposition of the chromatophore cells of the skin and the dermis. Its spontaneous appearance can be produced by subjecting the patient to sudden emotion, such as that caused by an unexpected noise like an explosion. Postemotional melanotic pigmentation is caused by an insufficiency of the adrenal cortex, proved by the fact that the administration of cortical extract for a prolonged period of time (one year and a half in the two cases reported by the authors) results in recovery. Discontinuance of the treatment before complete recovery causes an aggravation of the adrenal disturbance, manifested by the reintensification of the pigmentation and of the general symptoms.

Cholesterolemia and Arterial Hyperpressure.—Domenech and Lafuente discuss the relation between the disturbances of the cholesterol metabolism and the etiopathogenesis of arterial hyperpressure. On reviewing the literature one observes, first, that the results reported regarding experimental production of hyperpressure by administering diets containing substances rich in cholesterol to herbivorous animals are not applicable to the development of arterial hyperpressure in hypercholesterolemia in man because the cholesterol metabolism of human beings is entirely different from that of the lower animals; secondly, that the figures given by several workers as representative of the frequency and intensity of hypercholesterolemia in hypertensive patients are conflicting, and, thirdly, that there is no reason on which the criterion of the origin of hyperpressure due to a direct action of cholesterol can be based. The authors made determinations of the cholesterol in the blood of fifty-two patients between 25 and 75 years of age suffering from hyperpressure. In 65 per cent of the group (thirty-four cases) hypercholesterolemia was present, but its intensity was not related to that of hyperpressure, and they were all suffering coincidentally from some other pathologic condition that seemed to be responsible for the presence of hypercholesterolemia. The pathologic conditions in the patients were a hypercortico-adrenal syndrome in six cases, hirsutism in one, diabetes in six, hyperthyroidism in two, climacteric hyperpressure in thirteen, syphilis in twelve, cardiac insufficiency in ten and

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pulmonary tuberculosis in two. The authors conclude that there is no etiopathogenic relation between hypercholesterolemia and arterial hyperpressure.

Arch. Urug. de Med., Cir. y Especialid., Montevideo

7: 497-624 (Nov.) 1935. Partial Index

Congenital Stenosis of Aortic Orifice: Possible Repercussion of Tensional Values on Ventricular Hypertrophy and on Electrocardiogram. A. Alvarez-Mouliá and C. de Pró.—p. 499.
Critical Study of Oleochrysotherapy. F.-D. Gómez and J.-C. Negro. —p. 513.
*Simultaneous Gold and Arsenical Treatment in Tuberculosis Complicating Syphilis. F.-D. Gómez and A.-R. Ginés.—p. 517.
Treatment of Cancer of Uterine Neck. L.-P. Bottaro.—p. 521.
The Middle Lobe of the Lung in Children: Clinical and Roentgenologic Study. A. Carrau and H. Bazzano.—p. 569.
Trapezium Shadows of Cardiac Roentgen Image. E. Anaya and N. Caubarrère.—p. 573.

Tuberculosis Complicating Syphilis.—Gómez and Ginés made Wassermann tests of the blood serums of 1,013 women suffering from various diseases, with positive results in 110 cases. The sputum of eighty-nine patients in this group contained tubercle bacilli, twenty-four of whom, suffering from fibrocaseous pulmonary tuberculosis, were given a combined treatment of intravenous injections of neoarsphenamine (in increasing doses of from 0.15 to 0.6 Gm. per injection once a week) and of double gold and sodium thiosulfate (in doses of 0.5 Gm. per injection twice a week). The total amount of neoarsphenamine administered during the treatment varied between 6 and 10 Gm. The arsphenamine and gold injections were made on different days and were well tolerated even by patients suffering from pulmonary tuberculosis complicated by laryngeal or intestinal tuberculosis. Hemoptysis did not follow the treatment. A severe hemorrhage was controlled in one case a few hours after the administration of an intravenous injection of neoarsphenamine. The treatment seemed to develop renal complications, which made their appearance in six patients of the group of twenty-four thus treated. Syphilis, as interpreted by the symptoms and by the results of the serologic reactions, and pulmonary tuberculosis followed an independent and sometimes opposite evolution. The pleuropulmonary disease of patients in whom the examination of the sputum failed to show tubercle bacilli was considered of tuberculous rather than syphilitic origin because of the aspect and seat of the pulmonary lesions and of the history of the patient.

Archiv für Gynäkologie, Berlin

160: 1-222 (Nov. 29) 1935. Partial Index

*Studies on Cholesterol Metabolism in the New-Born: Contribution to Problem of Icterus Neonatorum. O. Mühlbock.—p. 1.
Hemato-Encephalic Barrier in Inflammatory Disturbances of Female Genitalia. H. Hoffmann.—p. 62.
Chorionepithelioma and Hydatid Mole from Point of View of Quantitative Hormone Determination. J. Ruricska.—p. 76.
*Treatment of Trichomonas Vulvovaginitis by Means of Silver Salt Solutions in Ammonia. E. Werbatus and L. S. Kritschewsky.—p. 97.
Limits of Obstetrics in the Home in Disturbances of After-Birth Period. C. Holtermann.—p. 101.
Treatment of Eclampsia with Solution of Magnesium Sulfate. D. P. Browkin.—p. 141.

Cholesterol Metabolism in the New-Born.—Mühlbock found that the cholesterol content of the blood and serum of the umbilical cord is unusually low in comparison with that of the maternal blood. The esterification ratio in the umbilical serum is the same as in the maternal serum. The percentage of free cholesterol in the blood of the umbilical cord is greater than that in the maternal blood. This is explained by the larger number of erythrocytes that contain only free cholesterol. In the new-born there is a considerable increase in the cholesterol content during the first few days of life. It begins a few hours after birth and reaches its maximum on the second or third day of life. In the blood as well as in the serum this increase is almost entirely the result of an increase in free cholesterol. The author discusses the various causes of the increase during the first few days of life but reaches no satisfactory explanation. In infants with icterus neonatorum and without it he found no difference in the height of the cholesterol values or in the esterification ratio. In this connection he discusses icteric conditions in adults and shows that icterus neonatorum cannot be caused by biliary stasis (as had been assumed by some) but must be the result of hematogenic factors.

Treatment of Trichomonas Vulvovaginitis.—Werbatus and Kritschewsky point out that the therapeutic effect of silver solutions is largely dependent on their degree of dissociation. They cite Jermolajew's studies, which disclosed that the presence of ammonia is important for the action of silver salts. In preparing the so-called ammonia silver salts, silver nitrate serves as the basic substance. It is first transformed into some form of silver salt, such as silver chloride ($AgNO_3+NaCl=AgCl+NaNO_3$). This salt is then dissolved in ammonia ($AgCl+[NH_3]n+H_2O$). In the solution thus obtained, the silver plays the part of the more active ions (cations) and the chlorine the part of the less active ions (anions). The authors used the freshly prepared solution for the treatment of women with trichomonas vulvovaginitis. The treatment consisted of three phases: (1) the vagina was irrigated with 1 liter of a 1:20,000 solution of ammonia silver salt; (2) enemas of 100 cc. were given with a 1:40,000 solution of the same preparation without previous evacuation of the bowel; (3) a cotton tampon saturated with the 1:20,000 solution was left in the posterior vaginal vault for from twelve to eighteen hours. This procedure was repeated daily for about two weeks. Every fifth day the vagina was examined for the degree of purity and the presence of Trichomonas vaginalis. The authors obtained good results with this method.

Beiträge zur klinischen Chirurgie, Berlin

162: 513-672 (Dec. 4) 1935. Partial Index

*Rôle of Brown-Pearce Tumor of Rabbit in Experimental Studies on Neoplasms. K. H. Bauer and K. Deckner.—p. 513.
Roentgen Irradiation in Treatment of Prostatic Hypertrophy. P. Blümel. —p. 545.
Cholecystography of Gallbladder Stasis. R. Schrader.—p. 578.
Value of Roentgenologic Investigation of Postoperative Biliary Fistula. E. Mester (Kaufman).—p. 635.
*Calcium Metabolism and Surgery of Parathyroids. F. Mandl.—p. 643.

Rôle of the Brown-Pearce Tumor in Experimental Studies.—Bauer and Deckner studied the biologic and pathologic characteristics of the Brown-Pearce tumor in 200 rabbits. They conclude that this neoplasm is a primary carcinoma of the skin in which the malignant condition is much greater than that of most growths found in man. The fact that it can be readily transplanted and that it gives rise to early and widespread metastases makes it particularly valuable for purposes of experimental study. Reinoculation is accomplished by removing tissue from a metastatic growth under aseptic precautions, making an emulsion of it in physiologic solution of sodium chloride and injecting it into the testicle or into a vein. Inoculation into the brain, the anterior chamber of the eye and under the skin was found less advantageous. The histologic structure of the tumor is that of an immature skin carcinoma, the cells of which possess no definite arrangement because of the almost total absence of stroma. The tumor metastasizes early and with great rapidity. The stormy growth of its cells is, however, accompanied everywhere by necrosis. The metastases spread by the lymphogenous and the hematogenous routes. The authors studied the questions of the preservation of individual characteristics on the part of the cancer cells, of the increase in the malignant condition and of predisposition or resistance to the tumor. They found that the tumor cells retained their original characteristics after fifteen years and many reinoculations. They may in a sense be considered potentially immortal, provided reinoculations into new organisms are kept up. The virulence has increased with time. Nearly all types of rabbits proved susceptible, although resistant types were occasionally encountered. The influence of individual differences and of external conditions, such as season or light, played a subordinate part in the question of immunity to the tumor. In the opinion of the authors, the tumor offers great possibilities for investigation of the value of roentgen therapy, the hereditary biologic characters of cancer and the question of inheritance of predisposition to cancer as well as of the possibilities of chemotherapy.

Calcium Metabolism and Surgery of Parathyroids.—Mandl states that generalized fibrous osteodystrophy or Recklinghausen's disease of bones constitutes a definite disease that can be diagnosed correctly in most instances. In the majority of such cases an enlargement of the parathyroids is found when operation is performed. Complete restoration to normal follows

the removal of the parathyroids. In a small number of cases with a clearly established diagnosis, a parathyroid tumor was not found at the time of operation. It is assumed that in such cases there may exist an enlarged but misplaced and therefore inaccessible parathyroid body. The removal of a normal parathyroid, however, leads even in these cases to a cure or at least to an improvement. Cases have been reported in which the removal of normal parathyroid tissue, in the absence of a parathyroid tumor, failed to cure the existing generalized bony dystrophy. A theoretical explanation of such cases is the possibility of some other endocrine influence on calcium metabolism than that of the parathyroids, or the more simple possibility of the existence somewhere in the body of misplaced hyperfunctioning parathyroid tissue. The fact that improvement has taken place following the removal of normal parathyroids in cases of ankylosing arthritis or in scleroderma, conditions in which the calcium metabolism is not disturbed, suggests that the parathyroids may have other functions besides that of regulating the calcium metabolism. Decalcination by means of parathyroid extract is worthy of trial in cases of hypercalcemia with bony changes, though its effects are not as striking or lasting as those of parathyroidectomy. Localized fibrous osteitis and Paget's osteitis deformans are not in any way related to Recklinghausen's disease of the bones It is, however, probable that Paget's disease is related in some way to the parathyroids.

Deutsche medizinische Wochenschrift, Leipzig

61: 1999-2038 (Dec. 13) 1935. Partial Index

Disturbances After Cerebral Operations and Their Treatment. W. Tönnis.—p. 1999.
Disturbances After Gynecologic Operations and Their Treatment. E. Holzbach.—p. 2000.
Disturbances After Pulmonary Operations and Their Treatment. H. Ulrici.—p. 2002.
*Differentiation of Benign and Malignant Hemorrhages of Gastro-Intestinal Tract. I. Boas.—p. 2003.
*Trichotillomania. C. L. Karrenberg.—p. 2006.

Hemorrhages in Gastro-Intestinal Tract.—Boas shows that the methods formerly employed for the demonstration of blood in the feces can no longer be considered adequate. In addition to the demonstration of hemin, it is necessary, particularly in the case of a strongly positive peroxidase reaction, to search also for occult hemoglobin and its derivatives. The first demonstration of hemoglobin does not make possible a differentiation of malignant and benign hemorrhages of the gastro-intestinal tract. Serial examinations are more valuable: if they reveal a gradual subsidence of the hemoglobin, a hemorrhage of benign origin is likely, whereas the continuous admixture of hemoglobin makes a malignant hemorrhage probable. However, the behavior of the stercoporphyrins is even more important. In the case of benign hemorrhages, the porphyrin content of the feces, particularly their content in deuteroporphyrin and protoporphyrin, is usually low, whereas in malignant hemorrhages it is usually considerably increased, irrespective of the amount of hemin products. For the approximate quantitative determination of the stercoporphyrins the author found helpful the use of a method that he designates as "shake-out number." He also stresses that the heretofore neglected spectroscopic and spectrochemical methods should be used more widely.

Trichotillomania.—Karrenberg describes the case of a boy, aged 12, with a peculiar type of loss of hair. The younger sister of the boy also had a peculiar type of alopecia. The skin seemed normal; there was no itching and the shape of the hairless area indicated an artefact. The children were carefully watched and it was found that the boy pulled out his own hair as well as that of his sister. The hair was cut short and the boy was admonished to discontinue the practice. The hair grew again. In this connection the author calls attention to Hallopeau's report on trichotillomania, in which the disorder was considered a disease entity in which extreme pruritus is the primary symptom. Later reports by several other investigators indicated, however, that trichotillomania is not so much a disease entity as a symptom that becomes manifest in various disorders, such as idiocy, dementia, hysteria, neuropathy, chronic alcoholism, compulsion neuroses, sexual neuroses and psychic depressions. The disorder has been observed also in persons without mental disturbances. The author relates a case in which trichotillomania concurred with syphilitic alopecia areata. The author points out that, in cases in which a mental disorder is the underlying cause, psychiatric treatment will be necessary.

Klinische Wochenschrift, Berlin

14: 1737-1776 (Dec. 7) 1935. Partial Index

*Investigations on Causes of Sodium Chloride Requirements. H. Glatzel.—p. 1741.
Clinical Aspects and Pathogenesis of Niemann-Pick Disease. T. Baumann.—p. 1743.
Influence of Hypophyseal Extracts on Blood Fat and Ketone Bodies of Persons with Obesity. G. Borruso.—p. 1746.
Studies on Hydrogen Ion Concentration in Duodenal Juice. Dienst and Doering.—p. 1748.
*Change in Action of Ovarian Hormone and of Gonadotropic Portion of Anterior Lobe of Hypophysis by Disturbance in Acid-Base Equilibrium. K. A. Bock.—p. 1750.

Causes of Sodium Chloride Requirements.—Glatzel admits that it is necessary to restrict the intake of sodium chloride in some disturbances, but points out that it has medicinal value in other conditions. His studies are concerned with the sodium chloride requirements of healthy persons. First he reports observations that refute Bunge's theory, according to which sodium chloride consumption is known only among peoples who subsist mostly on vegetable foods; that is, on foods with a high potassium content. The author found that a diet with high potassium content does not lead to loss of sodium and concludes that Bunge's theory does not explain the sodium chloride requirements. Since a number of ethnologic-historical, physiologic and clinical observations indicate connections between the sodium chloride and the carbohydrate metabolism, he decided to investigate this problem, particularly the cleavage of the polysaccharides by the salivary amylase. On the basis of the results he obtained with several test methods, he concludes that the diastatic cleavage of the polysaccharides is greatly promoted by sodium chloride. He found that sodium chloride accelerates the action of the diastase as such and that it causes the secretion of a saliva that has a stronger fermentative action. He points out that quite similar conditions have been found in the pancreatic and the hepatic diastase.

Action of Hormones in Disturbances of Acid-Base Equilibrium.—Bock shows that the incretory glands are not only related among themselves but also influenced by factors such as the sympathetic nervous system, the acid-base economy and the electrolyte constellation. He investigated the dependence of the action of the ovarian hormone on the hydrogen ion concentration of the animal organism. For these studies he used mature, castrated white mice. He observed that estrus could be elicited with 0.8 mouse unit in castrated mice that had received an acid diet, whereas in case of an alkaline diet signs of estrus did not even appear following the administration of 1.4 mouse units. In studies on the dependence of the action of the gonadotropic hormone of the anterior lobe of the hypophysis on the hydrogen ion concentration of the animal organism, the author used infantile female mice. Here again he obtained unequivocal results. Animals that had received an acid diet showed spots of blood in their ovaries when only 0.6 mouse unit of gonadotropic substance had been given; animals receiving an ordinary diet showed this reaction in response to 1 unit, and animals on an alkaline diet showed the spots when 1.2 units was given, and, in order to elicit estrus, it was necessary to give still larger doses. The author thinks that these observations may prove useful in the endocrine therapy of human subjects.

14: 1777-1808 (Dec. 14) 1935. Partial Index

Tyrosine and Thyroxine. I. Abelin.—p. 1777.
Electrocardiogram in Severe Hypoglycemic Shock. A. de Châtel and C. Palisa.—p. 1784.
Appearance of Formic Acid in Urine in Course of Apple Diet. K. Voit and H. Friedrich.—p. 1792.
*Vitamin C Requirements During Pregnancy and Lactation. W. Neuweiler.—p. 1793.

Vitamin C Requirements During Pregnancy.—Neuweiler describes elimination tests on nonpregnant, pregnant and lactating women, which he conducted in order to determine the vitamin C requirements during pregnancy and lactation. The

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tests revealed that the vitamin C consumption is greater in pregnant than in nonpregnant women and that the vitamin C requirements are even greater during lactation than during pregnancy. He concludes that the danger of C hypovitaminosis is especially great during pregnancy and lactation and that because of this it is important that pregnant and lactating women receive an adequate supply of vitamin C. If the diet does not provide sufficient amounts of the vitamin in the natural form (from fruits and so on), the vitamin C may be given in the form of a vitamin C preparation.

Medizinische Klinik, Berlin

31: 1625-1656 (Dec. 13) 1935. Partial Index

Morphologic Reactions of Organism in Response to Infectious Agents. F. Büchner.—p. 1625.
Hypnotics and Sedatives in Circulatory Disorders. R. Weiss.—p. 1628.
Occurrence and Causes of Erythrocytosis. H. Otto.—p. 1635.
Climatic and Dietetic Treatment of Exophthalmic Goiter. E. Szász.—p. 1638.
*Pathogenic Significance of Pituitary Basophilism, Particularly for Eclampsia. E. J. Kraus.—p. 1641.
*Typical "Sport Injury" of Ankle Joint in Football Players. A. Lerch.—p. 1643.

Significance of Pituitary Basophilism.—Kraus calls attention to studies indicating that pituitary changes, particularly pituitary basophilism, play a part in the pathogenesis of nephropathy and eclampsia of pregnant women. He also cites studies disclosing that an increase in the basophilic cells of the hypophysis is observable not only in chronic nephritis and in various forms of contracted kidney but also in normorenal patients with dementia paralytica, so-called constitutional obesity, syphilitic mesaortitis, chronic alcoholism, or essential hypertension, and even under normal conditions in persons of the athletic type, particularly in those whose weight is somewhat excessive. The fact that the majority of the aforementioned disturbances are found chiefly in persons with a hypersthenic habit indicates that constitutional factors play a part in the increase in the basophil cells of the hypophysis. Moreover, the author found that pituitary changes are frequently accompanied by adrenal changes and that there is a relation to conditions of the blood pressure and to the fat and cholesterol metabolisms. However, although admitting a relationship between pituitary basophilism and such disturbances, he doubts the pathogenic significance of pituitary basophilism. He cites factors that contradict the pituitary genesis of eclampsia and of hypertension and shows that the pituitary basophilism observed in the various disturbances that are accompanied by hypertension as well as in constitutional obesity is only an occasional result but not the cause of these disturbances. With regard to the invasion of basophil cells into the posterior lobe of the hypophysis in cases of eclampsia, he says that there is not necessarily a direct connection between the two, even as the manifestation of a compensatory process. He thinks that the increased invasion of basophils is due to the fact that the majority of women with eclampsia are obese (73 per cent according to one report) and that obesity is accompanied by pituitary basophilism in about 80 per cent of the cases. Moreover, since in many cases of eclampsia parenchymatous nephritis and contracted kidney had existed before, the increased number of basophil cells could also be related to the renal disorder without having a causal connection with eclampsia.

Injury of Ankle Joint in Football Players.—Lerch reports that he has observed cartilage bodies in the ankle joint of three young men who were football players. The first of the cases is described in detail, because it illustrates the pathogenesis of the free joint bodies. The process begins with changes in the articular cartilage indicated by an indefinite outline and by excrescences, and then the degenerated cartilage becomes gradually detached until finally there is a freely movable body. In this case as well as in the two other cases, the bodies were removed by a surgical intervention so as to avoid incarceration in the ankle joint. In the course of examinations of other football players, the author observed twelve others with changes at the osseocartilaginous boundary of the talus. These men, however, made no complaints, and therapeutic intervention was therefore dispensed with.

Monatsschrift für Kinderheilkunde, Berlin

64: 81-240 (Dec. 2) 1935. Partial Index

*Studies on Cardiac Changes in Children with Goiter. A. Viethen.—p. 81.
*Static Infantilism. E. Flusser.—p. 88.
Complications of Mumps in Children. W. Mikulowski.—p. 101.
Action of Mustard Plaster on Skin. Y. Hiro and M. Yamada.—p. 109.
Lymphogranulomatosis of Lung During Childhood. H. G. Huber.—p. 126.
*Causes of Infant Mortality. O. Saxl.—p. 136.

Cardiac Changes in Children with Goiter.—Viethen says that Feer's observations of cardiac enlargement in new-born infants and nurslings with goiter was not corroborated by all investigators. Since this problem is of considerable clinical interest, the author made clinical and roentgenologic studies on its incidence and development in 177 children with goiter: twenty-three new-born, eighteen nurslings, fifty-five up to the age of 10 years and eighty-one between 10 and 15 years. He observed cardiac enlargements in the new-born and in nurslings, but the incidence was not quite as high as reported by others. Pathologic anatomic studies revealed a larger weight of the heart in the new-born with goiter than in those without goiter. This corroborated the roentgenologically observed enlargements of the heart. In children of school age, the cardiac enlargements are no longer as frequent as in young children. However, roentgenoscopy disclosed important changes in the shape of the cardiac shadow in about 25 per cent. Electrocardiographic studies on new-born infants, nurslings and older children with goiter gave no definite indications of toxic impairment of the heart. The author concludes from this that in these children the cardiac changes are a result of mechanical pressure of the goiter on the cervical organs.

Static Infantilism.—Flusser says that the term static infantilism was first used by Thomas for that condition of the static capacities in older nurslings or in small children which is observed in cerebral diplegia (Little's disease). It becomes manifest in an increased tension of the muscles of the extremities and a relaxation of the muscles of the trunk and neck. This behavior of the musculature, dysmyotonia, is a physiologic condition during the first few months of life but should have disappeared at the end of the first half year of life. If it persists longer, Little's disease must be thought of, but, if this disorder can be excluded, an abnormal behavior of the musculature is frequently interpreted as rachitic myopathia. However, the author emphasizes that rickets is characterized by a lax, hypotonic musculature of the extremities and that an increased tonicity cannot be ascribed to rickets. Moreover, simultaneously existing rickets of the bones does not justify the interpretation of changes in the musculature as rachitic. The main part of the author's report is concerned not with static disturbances that are the result of rickets or of abnormal conditions of the central nervous system but rather with a form of static infantilism characterized (1) by persistence beyond the normal period of the tonicity of the muscles and of the static capacities that exist during the first few weeks of life, (2) by abnormal smallness of the external genitalia, and (3) by insufficient longitudinal growth. Another symptom that is rather frequent in these children is cracking in the joints in case of voluntary, active movements. After pointing out that he has observed seven such cases within the last twelve years, he gives a more detailed discussion of the symptoms and reports observations he made in some of his cases. He is convinced that the concurrence of the three symptoms dysmyotonia (with or without articular noises), microgenitalism and retardation in the longitudinal growth is not accidental but is of a constitutional nature. He hopes that his report of as yet incomplete observations will stimulate observations on a larger clinical material.

Causes of Infant Mortality.—Saxl summarizes his investigations as follows: 1. Up to 1925 the infant mortality in Prague showed a constant decline, but after that it increased again and reached a new peak in 1931, which from 1932 to 1934 was followed again by a declining tendency. The curve indicating stillbirths showed a similar behavior. 2. The mortality of nurslings and of the new-born and the number of stillbirths show a dependence on social factors. 3. The number of stillbirths increases with the size of the city, except that in cities of more than 100,000 inhabitants the percentage shows

again a slight reduction. 4. The chief causes of stillbirths and early deaths are, in the order of their importance, debility, asphyxia, birth trauma, syphilis and obstetric operations.

Münchener medizinische Wochenschrift, Munich

82: 1981-2020 (Dec. 13) 1935. Partial Index

Present Status of Research on Heredity in Gastric or Duodenal Ulcer. E. A. Witteler.—p. 1951.
Asthma, Allergy and Psychophysical Constitution. A. Hanse.—p. 1985.
*Scarlet Fever Conjunctivitis. H. Otto.—p. 1987.
Albuminuria of Psychic Origin. G. Buchner.—p. 1988.

Scarlet Fever Conjunctivitis.—Otto points out that the majority of infectious diseases are accompanied by conjunctivitis but that it is frequently asserted that conjunctivitis does not occur in scarlet fever. Moreover, the presence of conjunctivitis is by some interpreted as a sign that the existing disorder is not scarlet fever. The author's observations, however, indicate that conjunctivitis is not as rare in scarlet fever as has been asserted. Of 891 scarlet fever patients who were treated at his clinic, fifty-two had a conjunctivitis (almost 6 per cent). After mentioning the various morphologic types of scarlet fever conjunctivitis, he says that the time of onset and the duration of the conjunctivitis differ considerably. There is an early and a late form. The early form develops within the first six days, frequently together with the exanthem, and persists from two to sixteen days. The late type begins between the fifteenth and fiftieth days and lasts for from eight to twenty-five days. In the author's material the early form was the most frequent. He reviews and evaluates various theories of the etiology of the conjunctivitis of scarlet fever and points out that these theories disregard the eosinophilia in the blood, which to him is a sign of an allergic condition. He considers the conjunctivitis a manifestation of an allergic reaction.

82: 2021-2062 (Dec. 20) 1935. Partial Index

Narrow Pelvis and General Practitioner. E. Puppel.—p. 2021.
*Blood Transfusion in Treatment of Internal Diseases. K. Blumberger. —p. 2023.
*Suppurating Meningitis in Course of Scarlet Fever. H. Zischinsky. —p. 2028.
Prevention of Infection in Hospital. H. J. Keller.—p. 2031.
Specific Action of Short Waves. E. Haschè and T. Triantaphyllidès. —p. 2037.
Influence of Vitamin Deficiency of Feed in Surgical Interventions in South China. K. Boshamer.—p. 2045.

Blood Transfusion and Internal Diseases.—Blumberger has obtained satisfactory results with the citrate method. He recommends it in severe cases of pernicious anemia. For aplastic forms of anemia, blood transfusion has likewise been recommended, but opinion differs about its efficacy in these disorders. He says that the leukemias are not influenced by blood transfusion but that the secondary anemias that may accompany leukemia are favorably influenced. He does not consider blood transfusion a reliable method for the treatment of agranulocytosis but admits that favorable results have been reported. In thrombopenic conditions, blood transfusion has likewise been known to produce good effects. Moreover, blood transfusion has proved valuable as a blood substitute and for hemostatic purposes. In this connection the author mentions severe gastric and intestinal hemorrhages, severe loss of blood in hemophilic patients and parenchymatous hemorrhages. He shows that in early carcinomatous hemorrhages blood transfusion may eventually restore the patients to such an extent that surgical treatment can be resorted to. He estimates the value of blood transfusion in various infectious diseases. His own observations were made only on patients with sepsis and with infectious granuloma (Hodgkin), and his results were not greatly encouraging. Other infectious diseases in which blood transfusion has been known to produce favorable results are scarlet fever, measles, chickenpox, diphtheria and typhoid. In these cases it is usually the object to transmit the blood of persons who have had the corresponding infectious disease, in the hope that the antitoxin content of the donor's blood will be effective. However, the author stresses that other treatments, particularly serums, are usually available in these disorders. He does not entirely reject the use of blood transfusions for these conditions but thinks that it should be used sparingly so as not to bring the method into discredit through misuse.

Suppurating Meningitis and Scarlet Fever.—Zischinsky gives the histories of three cases of suppurating meningitis in scarlet fever and shows that all were of the primary (metastatic) type. One of the patients recovered. As regards the pathogenesis of suppurating meningitis in scarlet fever, two types can be differentiated, the primary or metastatic type and the type that develops by direct conduction, in which case the ear plays the most important part, the accessory sinuses being of much less importance. He points out that in discussions with otologists the question is often raised as to whether there is really a metastatic meningitis in infectious diseases, many of them being of the opinion that the pathogenesis is usually otogenic. To this he replies that every experienced pediatrician will admit that there is a metastatic form. As far as the author's own observations are concerned, he thinks that the metastatic form is even the more frequent. He admits that this greater frequency is more evident in whooping cough than in scarlet fever, since suppurating meningitis is comparatively rare in the latter condition.

Wiener klinische Wochenschrift, Vienna

48: 1503-1534 (Dec. 6) 1935. Partial Index

Prognosis of Diabetes Mellitus During Childhood. R. Priesel.—p. 1503.
Pathology of Biliary Secretion. K. Glaessner.—p. 1506.
*Insulin in Treatment of Menorrhagia and Metrorrhagia. E. Klaften. —p. 1509.
Cardiovascular Syphilis. A. Wydrin.—p. 1515.
*Successful Use of Diiodotyrosine in Some Internal Disorders. A. Edelmann.—p. 1518.

Insulin in Treatment of Menstrual Disturbances.—Klaften points out that a number of investigators have tried insulin in the treatment of menstrual disturbances and that he has resorted to their prophylactic treatment with insulin. He found that this treatment normalized the flow in some cases of profuse menstrual bleedings and particularly in prolonged bleeding. He considers it especially important that the treatment was helpful in cases of polymenorrhea. It proved possible to prolong the interval from fourteen to twenty, twenty-four and finally twenty-eight days. The interval was normalized and the period of bleeding was shortened in twelve out of fifteen patients with polymenorrhea and hypermenorrhea, but the intensity of the hemorrhage was influenced only in half the number. In twelve cases of juvenile hemorrhagic metropathy the results were likewise favorable, but in preclimacteric hemorrhagic metropathy the effect was not so good, in that only some of the patients responded. The latter were usually women who had undergone surgical treatment for gastrointestinal ulcer or for cholelithiasis. All had lost weight and this emaciation was accompanied by menstrual disturbances; that is, these cases were characterized by secondary, insulogenic menstrual anomalies. Another group of women in whom polymenorrhea and hypermenorrhea were favorably influenced by insulin therapy were those who had a hereditary history of diabetes or those who later developed diabetes. Women of the preclimacteric period with hemorrhagic metropathy who did not have the aforementioned symptoms (emaciation, metabolic disturbances, cholecystopathy and so on) did not respond so well to insulin treatment. The insulin dosage was adapted to the body weight, the age and the blood sugar value. Generally the daily dose varied between 15 and 30 units, but in some instances as much as 40 or 50 units was given. The injections were begun five days before the expected menstruation and were continued for four or five days. The author points out that he found insulin effective also in two women with emaciation, anorexia and amenorrhea. He shows that the mechanism of the insulin action is extremely complicated. He mentions the metabolic component, the regenerative effect, the influence on the sympathetic nervous system and on the process of follicle maturation and the formation of the corpus luteum. An influence on the anterior lobe of the hypophysis is likewise possible.

Diiodotyrosine in Internal Disorders.—Edelmann points out that, although iodine medication was known to be effective in many disorders, its use was avoided because of the danger of exophthalmic goiter. Since diiodotyrosine is as effective as inorganic iodine but does not involve the same danger of harmful effects, the author decided to use it in conditions in which

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iodine therapy promised favorable results. On the basis of his observations he considers the use of diiodotyrosine indicated in so-called rheumatic disturbances that are caused by metabolic disorders, particularly uric acid diathesis; in the rheumatic disturbances that are caused by endocrine disorders; in allergic conditions, particularly bronchial asthma and vasomotor rhinitis; in tachycardias of thyrotoxic climacteric or of unknown pathogenesis; in some cases of diabetes; in goiter, and preparatory to thyroidectomy.

Zeitschrift für klinische Medizin, Berlin

129: 1-136 (Nov. 18) 1935. Partial Index

*Involvement of Hypophysis in Pathogenesis of Human Diabetes Mellitus. K. J. Anselmino and F. Hoffmann.—p. 24.
*Rhythmic Activity of Human Liver. A. Jores.—p. 62.
Day-Night Rhythm of Diabetes Mellitus. R. Hopmann and H. Martini. —p. 70.
Hepatic Function in Thyrotoxicosis. C. A. A. Schrumpf.—p. 95.
*Observations on Morbus Caeruleus. U. Steinberg and B. Wiesner. —p. 100.
*Quantitative Determination of Porphyrin in Urine as Aid in Early Recognition of Lead Poisoning. K. Franke and S. Litzner.—p. 115.
*Lead Poisoning and Porphyria. E. Roth.—p. 123.

The Hypophysis and Diabetes Mellitus.—The survey of Anselmino and Hoffmann on the present knowledge of the modification of the carbohydrate metabolism by the anterior lobe of the hypophysis reveals that this lobe acts on the carbohydrate metabolism by means of a number of hormones. Since it has been possible to produce artificial diabetes in animals by the administration of various anterior pituitary extracts and since numerous clinical observations indicate a hypophyseal involvement in human diabetes mellitus, the authors have tried to demonstrate a disturbance of the hypophyseal regulatory mechanism in patients with diabetes mellitus. They detected a pathologically increased elimination of the anterior pituitary hormones of the fat and carbohydrate metabolisms in the urine of such patients and also the presence of an increased amount of these hormones in the blood while the patients were fasting. From these observations the authors conclude that the hypophyseal regulatory mechanisms are severely disturbed. They discuss the metabolic action of these two hormones and show that their action corresponds to the most important clinical symptoms of diabetes mellitus. They reach the conclusion that a functional disturbance in the hypophysis plays an important part in the development of human diabetes mellitus, which, as regards its pathogenic significance, places the anterior lobe of the hypophysis directly beside the pancreas.

Rhythmic Function of Human Liver.—Jores investigated the rhythmic function of the human liver by determining at four hour intervals, within the twenty-four hours of the day, the bilirubin content of the blood, the urobilinogen elimination and the pigmentation of the urine. In healthy persons who received a normal diet the curve indicating the bilirubin content of the blood had two maximal values: at noon and at midnight. The minimal values were observed at 8 a. m. and 8 p. m. The urobilinogen elimination in the urine shows a maximum between noon and 4 p. m. and a minimum during the night and early morning hours. The urinary pigment shows a maximum from 4 to 12 a. m. and a minimum between 4 and 8 p. m. In order to determine whether this rhythm is influenced by the intake of food, tests were made on patients with ulcer, who were fed by means of a duodenal tube. The patients were given the same amounts of a food mixture at two hour intervals in the course of the twenty-four hour period. It was found that this manner of food intake did not influence the rhythms. The same rhythms could be detected in patients with various types of jaundice. In view of the fact that the bile pigments originate in the blood pigments, it seems possible that the described rhythms might be connected with a rhythmic blood destruction. The author investigated this problem by determining the resistance of the erythrocytes in the course of the twenty-four hour period, but he found no fluctuations and he concludes that the aforementioned rhythms are connected with a corresponding rhythmic activity of the liver. He points out that the rhythmic formation of the liver is important for diagnosis and therapy and for the twenty-four hour periodicity in general.

Congenital Heart Defects.—Steinberg and Wiesner describe three cases of congenital cyanosis, one in a girl aged 19 and two in youths aged 20 and 19 respectively. Two of the patients died. The necropsies showed that the first patient had a stenosis of the pulmonary artery and a defect of the ventricular septum with displaced aorta. In the second patient there was a transposition of the large vessels, and the auricular septum was almost completely missing. The third patient had a defect of the auricular septum. The authors review the literature on the diagnosis of congenital cardiac defects. They show that the combination of several anomalies may make the diagnosis extremely difficult. They stress that the clinical aspects, percussion and auscultatory phenomena are the most important guides in the diagnosis.

Porphyrin in Urine and Lead Poisoning.—Franke and Litzner emphasize that it is highly important to determine the porphyrin content of the urine for the early recognition of incipient lead poisoning. They show that, in the absence of severe hepatic disturbances or of acute porphyria, daily porphyrin values of 500 micrograms (0.5 mg.) or a porphyrin content of 50 micrograms or more per hundred cubic centimeters indicate an impairment of the bone marrow by lead. They give a tabular report of the results of their tests on forty-two workers whose occupation exposed them to lead poisoning. They found that the normal porphyrin elimination in the urine is considerably higher in healthy lead workers than in other persons. They mention observations on three men (two brothers and a son of one) which indicated that there is a familial sensitivity to lead. It was observed also that the efficacy of the treatment of lead poisoning can be determined on the decrease in the porphyrin elimination. The authors recommended that workers who come in contact with lead should be subjected to prophyrin tests of the urine at regular intervals at least during the first two years of such work. In this manner it will be possible to determine whether they have a hypersensitivity to lead.

Lead Poisoning and Porphyria.—Roth reports a case of lead poisoning in which he investigated the relation between lead poisoning and the elimination of prophyrin. Every day he determined the quantity of urine, the elimination of porphyrin in the urine, the specific gravity of the urine, the erythrocyte values, the hemoglobin content, the reticulocytes and the resistance of the erythrocytes. The results of these studies are recorded in a table that also indicates the porphyrin content of blood and feces. The porphyrin elimination in the urine and in the feces was greatly increased. In the erythrocytes the protoporphyrin was greatly increased. There was no clear parallelism between the clinical symptoms and the porphyrin elimination. The symptoms decreased at a time when the porphyrin elimination was still rather high. The injection of liver extracts had no noticeable effect on the porphyrin elimination.

Zeitschrift für Tuberkulose, Leipzig

74: 161-240 (Dec.) 1935

*Influence of Tuberculin Desensitization on Tuberculosis Immunity. H. Selter and P. Weiland.—p. 161.
Simultaneous Occurrence of Pulmonary Abscess and Tuberculous Infiltration. P. Zoelch.—p. 170.
Short Wave Therapy in Sanatorium for Patients with Pulmonary Disorders. T. Peters and W. Tegethoff.—p. 178.
Statistics on Tuberculosis with Especial Consideration of Tuberculosis of Bone System. W. Wegat.—p. 188.
*Pathogenicity of Tubercle Bacilli of Mammals for Chickens. B. Grünberg.—p. 194.
Newer Medicaments and Nutritive Substances for Treatment of Tuberculosis. G. Schröder.—p. 196.

Desensitization with Tuberculin and Immunity Against Tuberculosis.—Selter and Weiland found that the desensitization of tuberculin-sensitive guinea-pigs with increasing doses of tuberculin does not impair the immunity of these animals against fatal superinfections. This indicates that sensitivity to tuberculin and immunity to tuberculosis are two distinct manifestations of the tuberculous infection, which are not mutually dependent and have no functional relations.

Pathogenicity of Tubercle Bacilli of Mammals for Chickens.—Contradictory statements of other investigators about the pathogenicity of mammalian tubercle bacilli for chickens induced Grünberg to investigate this problem. He

always succeeded in infecting chickens with virulent tubercle bacilli of the avian type. Of eight animals thus infected, five died as the result of the infection and on necropsy showed severe pathologic changes. Three survived, and, when killed from six to nine months after the infection, they were found to be tuberculous, although they had never shown tuberculous symptoms. Of ten chickens that had been inoculated with tubercle bacilli of the human type, two died, but only one of them showed signs of tuberculous infection. All other animals of this group were killed after nine months and at that time proved free from tuberculosis. Of the twelve chickens that were inoculated with bovine tubercle bacilli, six were undernourished at the time of infection, while the others were well fed. The first six died, but only four showed tuberculous changes. Only one of the six well fed animals became infected. The others were found free from tuberculous changes when killed six months later.

Zentralblatt für Gynäkologie, Leipzig

59: 2945-3008 (Dec. 14) 1935

Surgical Treatment in Complete Obliteration of Uterine Cavity. L. Nürnberger.—p. 2946.
Webster-Baldy-Franke Operation. K. Müll.—p. 2951.
Vesicofixation of Uterus as Surgical Treatment of Retroflexion, Descent and Prolapse. L. Kropp.—p. 2954.
Pregnancy in Deformities of Uterus and Vagina. A. G. Dobis.—p. 2958.
New Apparatus for Direct Blood Transfusion Without Addition. W. Briem.—p. 2968.
*Significance of Amenorrhea in Women with Pulmonary Tuberculosis. F. Gál.—p. 2973.

Amenorrhea in Tuberculous Women.—Gál describes studies showing that menstrual disturbances are comparatively frequent in pulmonary and in genital tuberculosis. However, he was unable to corroborate that the menstrual disturbance is more frequent in severe cases; that is, that the amenorrhea is caused by the tuberculous virus. He gained the impression that the amenorrhea is not caused by the tuberculous disorder but by the pathologic constitution that predisposes to tuberculosis. The severe forms of uterine and ovarian tuberculosis are of course different in this respect; in these cases the amenorrhea is caused by the destruction of the functioning tissues of the uterine mucosa and of the ovary. The author thinks that in the majority of tuberculous women with amenorrhea the menstrual disturbance requires no treatment. In the rare cases in which the amenorrhea is the cause of severe symptoms of abolished function, injections of endocrine products or quartz lamp irradiations are often beneficial.

Novyy Khirurgicheskiy Arkhiv, Dnepropetrovsk

34: 459-600 (No. 136) 1935. Partial Index

Pseudarthroses. G. I. Turner.—p. 463.
*Clinical and Laboratory Evaluation of Cod Liver Oil Treatment of Wounds. V. I. Iost and I. G. Kochergin.—p. 476.
Diagnostic Errors and Their Causes. N. Soroko.—p. 492.
Against Routine in Polemic and for Early Operation in Acute Appendicitis. B. B. Beizman.—p. 527.
Defense of Early Operation in Acute Appendicitis. L. M. Ratner.—p. 531.

Cod Liver Oil Treatment of Wounds.—Iost and Kochergin report 263 cases in which cod liver oil treatment was used. Of these, twenty-eight were chronic ulcers, twenty-five burns or frost bites, nineteen severe trauma of the soft tissues of the extremities, ten open amputation stumps, 150 fresh superficial wounds and forty suppurating wounds. Cod liver oil was applied as a paste, made with 100 cc. of cod liver oil, 100 Gm. of petrolatum, 1.5 cc. of a preparation containing vitamins, and 10 cc. of Japanese wax. In their experience a local application of cod liver oil was definitely beneficial in chronic ulceration, burns, frost bites and recent trauma of soft tissues. They believe the effect to be due to the abundant vitamin A and D content of the cod liver oil. Vitamin D possesses the property of stimulating the growth of granulations and of the epithelium. They consider it possible that there exists in the pathologic lesions or traumatized tissue a lack of vitamin due either to interrupted supply or to an increased demand for vitamins. The authors demonstrated in their bacteriologic studies that cod liver oil lowers the vitality of pus-producing bacteria. The application of cod liver oil to the wounds in the form of a paste is more efficient because the oil is kept in contact with all parts of the wound. Keeping the lesion at rest is an important element in the treatment and is accomplished by fewer dressings or by immobilization in a plaster cast.

Ugeskrift for Læger, Copenhagen

97: 1205-1232 (Nov. 28) 1935

Hypertrophy of Prostate. E. Thomsen.—p. 1205.
Transurethral Resection of Prostate According to McCarthy. H. Abrahamsen.—p. 1209.
*Preoperative and Postoperative Treatment of Salt Deficiency, Dehydration and Acidosis. E. Kirk.—p. 1212.
Method for Bandaging Supracondylar Extension Fractures of Arm in Children. L. O. Christensen.—p. 1216.

Salt Deficiency, Dehydration and Acidosis.—Kirk states that, whenever salt deficiency and dehydration are probable in surgical diseases, plasma chloride and plasma bicarbonate analyses are in order. Treatment consists in subcutaneous, intravenous or rectal administration of isotonic solution of sodium chloride (0.9 per cent). In grave cases from 3 to 5 liters is given daily, 1 liter at each session, until the chloride values and the total salt content of the plasma become normal and a diuresis of from 1 to 2 liters daily is attained. The salt content in 1 liter of vomit being about the same as in 1 liter of plasma, none of the amount of vomited matter aids in the daily establishment of the necessary salt dosage. Overdosage is prevented by examination of the plasma chloride values. In acidosis of nondiabetic nature due to loss of alkaline secretion or retention of acids, intravenous injections of isotonic solution of sodium bicarbonate (1.3 per cent) are given. Symptoms of dehydration, mainly oliguria and increased blood urea, are often present. If the dehydration is partly due to chloride deficiency, supplementary administration of isotonic solution of sodium chloride is desirable. If the acidosis depends on inanition, a solution of dextrose also is indicated. The author warns against subcutaneous injections of the bicarbonate solution and against sterilization of the solution by heating and states that the solution must be used within four or five days after preparation. The amount of bicarbonate indicated in any case can be approximately determined by application of Palmer and Van Slyke's monogram. The effectivity of the treatment may be controlled at any time by determination of the bicarbonate content of the plasma. As a rule 1 liter of bicarbonate solution is given at each session in the course of about twenty minutes. If cardiac complications are suspected, great care must be exercised and intravenous injections of larger amounts of fluid omitted. Six cases are reported.

97: 1233-1250 (Dec. 5) 1935

*Iron Therapy of Anemia with Control. H. C. Gram.—p. 1233.

Iron Therapy of Anemia with Control.—Gram finds that iron in suitable form and dosage, probably 0.5 Gm. of ferrous tartrate three times daily, is a far more effective remedy in most simple anemias than is generally supposed and one not to be neglected.

97: 1275-1296 (Dec. 19) 1935

Multiple Manifestations of Surgical Tuberculosis. E. Thomsen.—p. 1275.
Experiences with Omnadin in Infectious Diseases. E. Tryde.—p. 1278.
*Agranulocytosis in Same Patient Under Different Conditions. H. A. Olsen.—p. 1283.
Epidemic Nausea? A. Rischel.—p. 1285.

Three Attacks of Agranulocytosis.—Olsen has himself had three attacks of agranulocytosis, the first, a typical case in 1928 after use of allylisopropylbarbituric acid and aminopyrine for about two weeks, and the second, a slight recurrence with characteristic blood changes, being the earliest cases of agranulocytosis reported in Denmark. Blood examinations from 1928 to 1931 showed normal relations. After a relatively small dosage of double gold and sodium thiosulfate given in sanatorium treatment of a fairly recent tuberculous infection in both lungs in 1931, a highly febrile condition developed with pronounced symptoms of metal poisoning, and agranulocytosis was established. The double gold and sodium thiosulfate is regarded as the etiologic factor. These instances apparently show that a person may have a specific form of sensitiveness to substances of different chemical composition and, having reacted toward one substance with agranulocytosis, may react similarly toward other substances.

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